

May
1885

War Department, Signal Service, U. S. Army.

(TELEGRAM.)

FORM No. 202

NUMBER.	SENT BY	REC'D BY	CHECK.
	Duf	D	33073

GENERAL ORDERS, } HEADQUARTERS OF THE ARMY,
No. 11. } ADJUTANT GENERAL'S OFFICE,
Washington, February 7, 1885.

I.. The 3d Regiment of Cavalry (except the troop stationed at Fort Leavenworth, Kansas) and the 10th Regiment of Cavalry will exchange stations, the movement to commence not later than April 1, 1885. The exchange will be made by marching.

II.. The commanding generals Divisions of the Pacific and the Missouri will assign the respective regiments coming to their commands to stations as soon as practicable after the receipt of this order.

III.. The columns during the movement will be provided with necessary supplies at convenient stations on the contiguous railroads.

IV.. As far as practicable, all regimental, troop, and the authorized allowance of officers' baggage will be shipped by rail from initial points to the new stations of the different detachments of each regiment.

V.. Further details will be arranged by the commanding generals Divisions of the Missouri and the Pacific, due regard being paid to economy by requiring, as far as practicable, the simultaneous arrival of columns at such points as they may designate for the exchange of wagon transportation.

BY COMMAND OF LIEUTENANT GENERAL SHERIDAN:

R. C. DRUM,
Adjutant General.

OFFICIAL:

Assistant Adjutant General.

Received at Verde 2/27/85- 1885.

Dated Whipple Bks 2/27/85-

To Dr Meares

Port Verde Ariz

Do you desire to accompany the
third Cavalry in its march from
this department, if so let me know
before I communicate officers for the
detail

I will
meet you

HEADQUARTERS DEPARTMENT OF ARIZONA,
WHIPPLE BARRACKS, PRESCOTT, March 11, 1885.

SPECIAL ORDERS }
No. 25. }

(Extract.)

1. In compliance with Division General Orders No. 4, current series, the 3d Cavalry, except as therein prescribed, will march to Bowie Station, A. T., leaving their present stations in time to reach that point not later than the 13th proximo, and thence to Deming, N. M., as directed by said order. The troops at Forts Apache, San Carlos, Thomas and Grant will unite, in the order of posts named.

Regimental, troop and officers' baggage will be shipped as directed in paragraph 4th General Orders No. 11, current series, Headquarters of the Army. Supplies will be furnished from this Department to Deming, and for the 10th Cavalry, from that point to stations as assigned.

The Chiefs of the Quartermaster's and Subsistence Departments will provide necessary supplies for the troops at convenient points contiguous to the line of march between the posts in this Department and Deming, N. M. Posts will supply transportation as follows, to be assigned to service by the Chief Quartermaster:

Whipple Depôt.—4 six-mule teams.—1 ambulance.
Fort Verde.—1 six-mule team.
Fort Apache.—2 six-mule teams.—1 ambulance.
Fort Thomas.—4 six-mule teams.—1 ambulance.
San Carlos.—1 six-mule team.
Fort Grant.—7 six-mule teams.—1 ambulance.
Fort Bowie.—2 six-mule teams.
Fort Huachnea.—3 six-mule teams.

2. Captain *C. W. Williams*, assistant quartermaster, will proceed to Bowie Station, prior to the arrival there of the 3d Cavalry, and thence to Deming, N. M., for the purpose, under instructions of the Chief Quartermaster and Commissary, of superintending the transportation and supply of the troops from and to their posts. Upon completion of these duties Captain *Williams* will rejoin his station.

The journeys as directed are necessary for the public service.

Dr Mearns. 3

3. The Quartermaster's Department will furnish the necessary wagon and rail transportation, via Ash Fork to Fort Davis, Texas, to the Colonel, Adjutant, non-commissioned staff and band of the 3d Cavalry.

4. Assistant Surgeon *E. A. Mearns*, U. S. Army, will report to Lieutenant Colonel *D. R. Clelandin*, 3d Cavalry, to accompany the regiment as medical officer in charge, and will return with the 10th Cavalry, to his station—Fort Verde.

Acting Assistant Surgeon *G. E. Andrews*, U. S. Army, will report to the Commanding Officer Fort Thomas, to accompany the troops from Forts Apache, Thomas and Grant to Bowie Station, thence with the regiment to Deming and return with the troops of the 10th Cavalry assigned to Forts Grant, Thomas and Apache, from which last named point he will rejoin his station—Fort Huachuca.

The journeys of Acting Assistant Surgeon *Andrews* as directed are necessary for the public service.

Acting Assistant Surgeon *S. F. Weirick*, U. S. Army, will accompany Troop A, 3d Cavalry, upon its departure from Fort Apache to Fort Thomas, reporting upon arrival to the commanding officer for temporary duty at that post.

The Quartermaster's Department will furnish the necessary transportation.

5. Private *C. W. Hunsaker*, Troop C, 3d Cavalry (hospital steward of the 3d class), on being relieved at Fort Lowell, will proceed to Fort Thomas and report to the commanding officer for duty in the same capacity with troops of his regiment under orders to proceed to Texas.

Private *Peter Werner*, Company E, 1st Infantry (hospital steward of the 3d class), will accompany the 3d Cavalry in that capacity to Deming, N. M., and return with the 10th Cavalry to his station—Whipple Barracks.

The Quartermaster's Department will furnish the necessary transportation.

* * * *

BY ORDER OF BRIGADIER GENERAL CROOK:

W. Bailew
Assistant Adjutant General.

A Journal of a Journey from Fort Verde,
To Deming, New Mexico;
Arizona, and Returning, Performed on
Horseback: Distance about 912 miles,
Leaving Fort Verde on March 25th, 1885,
and returning May 20th, 1885.

By Edgar A. Mearns,
1st Lieut. and Asst. Surgeon, U. S. A.;
Medical Officer in Charge of the 3rd and 10th
Regiments of U. S. Cavalry exchanging stations
between the Departments of Arizona and Texas.

Contents.

- Pages. 1 to 15 A Catalogue and description of the Birds taken
Pages 16 and 17 " " " " " Mammals "
Pages 18 to 21 " " " " " Reptiles "
Page 21 Note on Costa's Hummingbird
Pages 22 to 43 A Catalogue and descriptions of the Nests & Eggs taken.
Pages 44 to 137 Narrative and Itinerary of the Expedition
Pages 138 to Notes of the Collections made and a Preliminary Report upon Mammals and Birds made to the Surgeon General, U.S. Army.

Pages

	Sex	Age	Date	Locality & Name.
3906	♂ ad.	Apr. 9	81885	<i>Gallinula squamata</i> San Pedro River, A. J.
3907	♂ ad.	" 9		do do do
3908	♂ ad.	" 9		do do do
3909	♂ ad.	" 9		do do do
3910	♂ ad.	" 9		<i>Speotyto cunicularia hypogaea</i> Point of Mountain, A. J.
3911	♂ ad.	" 11		<i>Corvus cryptoleucus</i> Railroad Pass, A. J.
3912	♂ ad.	" 11		<i>Corvus cryptoleucus</i> Riverton Station, A. J. <i>Trochocetes montanus</i> Steens Pass, New Mexico.
3913	♂ ad.	" 11		<i>Trochocetes montanus</i> Steens Pass, New Mexico.
3914	♂ ad.	" 14		<i>Trochocetes montanus</i> Steens Pass, New Mexico.
3915	♂ ad.	" 14		<i>Trochocetes montanus</i> San Simon Valley, Arizona.
3916	♂ ad.	" 14		<i>Trochocetes montanus</i> San Simon Valley, Arizona.
3917	♂ ad.	" 14		<i>Trochocetes montanus</i> Steens Pass, New Mexico.
3918	♀ ad.	" 15		<i>Trochocetes montanus</i> <i>Cremophila alpestris chrysolaema</i> . Graduation of tail, 34.
3919	♀ ad.	" 15		Alkali Flat, near Pyramid, N. M.
3920	♂ ad.	" 15		<i>Trochocetes montanus</i> Goldsburg, New Mexico
3921	♂ ad.	" 15		<i>Ampelisitta bilineata</i> Goldsburg, New Mexico
3922	♂ ad.	" 15		do do do
3923	♂ ad.	" 16		<i>Calamospiza melanocorys</i> Separ, New Mexico
3924	♀ ad.	" 16		<i>Corvus cryptoleucus</i> Separ, New Mexico
3925	♂ ad.	" 17		<i>Centrophorus ornatus</i> Gage, New Mexico
3926	♂ ad.	" 17		do do do
3927	♂ ad.	" 17		<i>Centrophorus ornatus</i> Near Separ, New Mexico
3928	♂ ad.	" 17		do do do
3929	♂ ad.	" 17		<i>Coturniculus passerinus perlaticollis</i> Near Gage, New Mexico.
3930	♂ ad.	" 17		<i>Spizella pallida</i> Gage, New Mexico
3931	♂ ad.	" 17		<i>Calamospiza melanocorys</i> .
3932	♂ ad.	" 17		<i>Lanius ludovicianus excubitorides</i> Gage, New Mexico.
3933	♂ ad.	" 18		<i>Denning</i> , New Mexico.
3934	♂ ad.	" 18		<i>Scolecophaeus cyanocephalus</i> Near Denning, New Mexico.
3935	♂ ad.	" 18		<i>Pooecetes cassini</i> Near Denning, New Mexico.
3936	♂ ad.	" 18		<i>Mimus polyglottos</i> Denning, New Mexico.
3937	♀ ad.	" 19		<i>Harpactes cirratus</i> Denning, New Mexico.
3938	♂ ad.	" 20		do do <i>Nucifraga cinerascens</i>
3939	♂ ad.	" 20		<i>Denning</i> , New Mexico.
3940	♂ ad.	" 20		<i>Nyctidromus albicularis</i> Denning, New Mexico.

Learn antks.

	Length in mm.	Width expans. in mm.	Wing in mm.	Tail in mm.	Calcar and cere in mm.	Cere	Calcar	Nasal	Gape	Vomer	Jaws	Middle toe & claw	Claw
3906	280	400	121	98	—	—	12	9	16	—	33	36	8
3907	271	388	120	95	—	—	12	9	16	—	32	34.5	8.5
3908	285	395	119	98	—	—	12.5	9	16	—	35	35	9.5
3909	276	400	127	99	—	—	13	9	16	—	34	35	8
3910	240	635	178	84	18	5	14	2	22	4	47	28	11
3911	535	1085	365	225	—	—	58	38	60	—	60	57	17
3912	510	1000	385	210	—	—	48	34	58	—	64	56	15
3913	159	218	68	73	—	—	12	7.5	12.5	—	19	18	4
3914	222	313	98	96	—	—	20	13	26	—	31	25	6
3915	215	333	111	96	—	—	24	16	24	—	25	26	8
3916	140	200	64	65	—	—	9	—	9.5	—	17	16	4
3917	270	423	130	87	—	—	34	23	36	—	40	34	8
3918	517	1080	360	225	—	—	54	37	58	—	60	56	16
3919	166	302	98	67	—	—	13	10	18	—	22	17	6
3920	220	310	97	94	—	—	19	12	26	—	33	27	8
3921	143	213	66	68	—	—	12	—	12	—	19	17	4
3922	138	210	66	64	—	—	12	—	12	—	18	16	4.5
3923	185	294	93	74	—	—	14.5	—	16	—	25	24	7
3924	512	1065	355	230	—	—	50	36	57	—	58	55	16
3925	153	275	86	63	—	—	12	7	13	10.5	21	19	6
3926	160	285	91	68	—	—	11	7	12	10	21	19	5.5
3927	148	265	83	60	—	—	10	7	11	9	21	18	5
3928	142	260	81	60	—	—	10	—	12	—	20	18	5
3929	131	214	68	50	7	—	12	—	13	7	20	18	4.5
3930	135	217	68	50	7	—	12.5	—	13	—	21	18	4.5
3931	137	200	62	62	—	—	9.5	—	10	—	19	17	4.5
3932	180	925	89	72	8	—	14.5	—	15	—	26	23	6
3933	241	335	105	113	—	—	17	12	25	—	28	24	7.5
3934	259	415	134	112	—	—	20	—	22	—	24	29	8
3935	161	212	69	75	—	—	12	—	13	—	19	19	4.5
3936	251	353	111	120	—	—	20	12	25	—	34	30	8
3937	313	322	101	147	—	—	39	31	43	—	34	30	8
3938	294	333	105	136	—	—	39	31	42	—	35	30	7.5
3939	228	328	102	105	—	—	22	17	29	—	24	19	6.5
3940	128	169	57	54	—	—	10	6	14	—	19	18.5	4

Prairie.

10 No. 1885 Locality & Name Kern

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Sextant
Stage.
Date

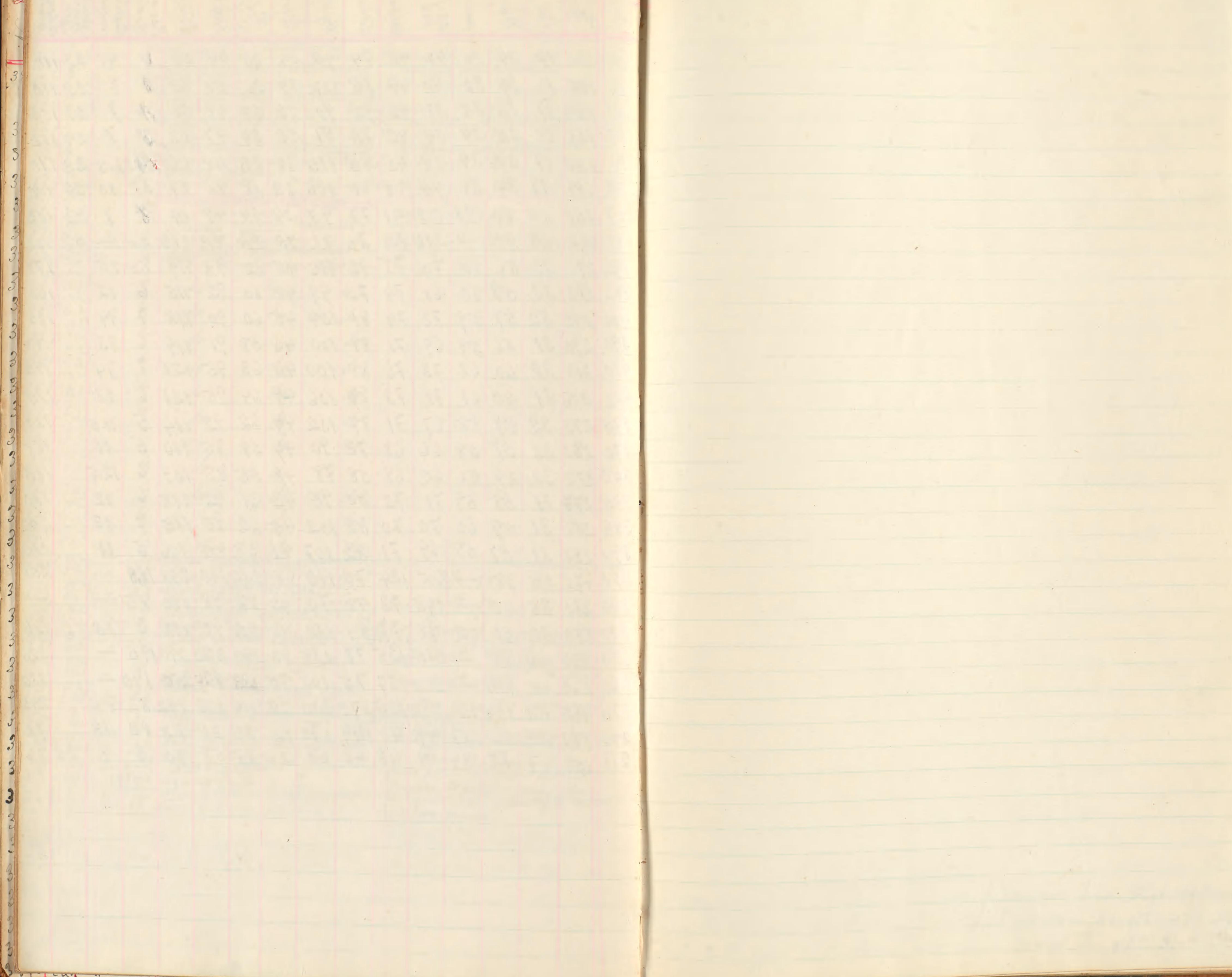
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Renn

14	Locality & Name.	Reve	Arted	Length in feet	Width in feet	Tail in feet	Tarsus and claw in feet	Culmen and gape in feet	Curv. of bill	Bills and tarsi	Tarsus and claw	Middle tarsal claw	Claw absent	
15	1885													
4040	bad. May 15	<i>Sparonychus curvirostris palmeri</i>	In worn breeding plumage.	290	360	109	122	—	—	32	25	37	—	
	"	<i>Sparonychus curvirostris palmeri</i>	Parent set $\frac{2}{3}$.	295	368	112	130	—	—	31	25	36	—	
4041	bad. " 15	<i>Desert Falcon</i> A. J.	rides, hazel. Bill pale plumbeous. Plumbeous black at tip. Crest yellow. Tarsus and feet yellow. Tail black.	530	1315	420	235	36	17	24	40	—	77	
		<i>Buteo abbreviatus</i> .	A mated pair, taken off.	497	1240	397	230	34	16	22	36	36	70	
4047	bad. " 16	New River. A. J.	do do colors same as above.	136	515	48	20	—	—	20	14	21	—	
		<i>Cardinalis virginianus igneus</i>	Parent of Set No. $\frac{2}{3}$.	540	1350	430	245	36	17	25	—	41	76	
4049	bad. " 16	Gilletts, A. J. ^{on trip}	<i>Buteo abbreviatus</i> . Parent of Set No. $\frac{3}{3}$.	-4047 + 4048	235	503	98	122	—	—	19	14	19	—
			Colors the same as No. $\frac{2}{3}$.	193	297	96	79	—	—	14	9.5	21	—	
4050	bad. " 17	Aqua Fria at Swilling's Ranch	Parent of Set No. $\frac{3}{3}$.	315	520	174	125	—	—	23	14	28	—	
		<i>Cardinalis virginianus igneus</i> .	rides, hazel. Bill, brownish. feet, fleshy-brown; mesquite.	91	115	47	27	—	—	18	—	22	4.5	
4051	bad. " 17	Aqua Fria at Swilling's Ranch	Parent of Set No. $\frac{3}{3}$.	92	114	—	—	—	—	—	—	22	5.5	
		<i>Hypocnemis luteola</i> .	rides, hazel. Bill, brownish. at base of mandible. Tarsi and claws, dusky tipped.	202	263	82	93	—	—	16	11	20	—	
4052	bad. " 17	Aqua Fria at Swilling's Ranch	<i>Melophila leucoptera</i> .	155	242	78	62	—	—	11	—	11.5	—	
			Crop filled with seeds.	310	570	170	123	—	—	22	14	27	—	
4053	bad. " 16	New River at Hall's Ranch, A. J.	Was sitting on its nest.	231	310	—	—	—	—	—	—	—	7	
		<i>Calyptar costata</i>	do do	310	504	169	127	—	—	23	14	27	—	
4054	bad. " 16	Aqua Fria at Gillett, A. J.	<i>Calyptar costata</i>	270	455	104	—	—	—	—	—	—	25	
		<i>Bumble Bee</i> A. J.	do do	250	323	104	127	28	—	20	14	20	—	
4055	bad. " 17	<i>Setaria viridis concava</i> .	do do	237	305	98	113	28	—	21	14	21	—	
		<i>Aqua Fria at Swilling's Ranch</i> .	do do	292	472	143	107	—	—	35	28	40	—	
4056	bad. " 17	<i>Carpodacus frontalis</i> .	do do	600	560	183	320	—	—	57	49	71	—	
		<i>Black Canaries</i> A. J.	do do	—	—	—	—	—	—	—	—	—	18.5	
4057	bad. " 17	<i>Black Canaries</i> A. J.	<i>Melophila leucoptera</i> .	nest was built in white spiny cacti on the side of a red plant used in its construction and rather conical.	one egg.	—	—	—	—	—	—	—	8	
			<i>Pipilo fuscus mesoleucus</i> .	set $\frac{1}{2}$.	231	310	—	—	—	—	—	—	—	
4058	bad. " 17	Black Canyon A. J.	<i>Pipilo fuscus mesoleucus</i> .	Young in first plumage.	310	504	169	127	—	—	23	14	27	—
		<i>Antelope chrysoides</i> .	do do	270	455	104	—	—	—	—	—	—	25	
4059	bad. " 17	Antelope A. J.	<i>Antelope chrysoides</i> .	Young still with parents. Feathers plumbeous. Tarsi and claws, brownish; plumbeous at base.	250	323	104	127	28	—	20	14	20	—
		<i>Cardinalis virginianus igneus</i> .	do do	237	305	98	113	28	—	21	14	21	—	
4060	bad. " 18	Big Bug Creek, A. J.	<i>Big Bug Creek, A. J.</i>	Parents of nest and set $\frac{1}{2}$.	292	472	143	107	—	—	35	28	40	—
		<i>Antelope chrysoides</i> .	do do	600	560	183	320	—	—	57	49	71	—	
4061	bad. " 18	Big Bug Creek, A. J.	<i>Geococcyx californianus</i> .	do do	—	—	—	—	—	—	—	—	27	
		<i>Ash Shrike</i> A. J.	do do	—	—	—	—	—	—	—	—	—	34	
4062	bad. " 19	<i>Buteo borealis calurus</i>	<i>Geococcyx californianus</i> .	Young of year still in its shell. Barely able to fly a little.	—	—	—	—	—	—	—	—	11	
		<i>Ash Shrike</i> A. J.	do do	—	—	—	—	—	—	—	—	—	25	
4063	bad. " 19	<i>Scor. asio trichurus</i>	<i>Geococcyx californianus</i> .	Two of 4 young taken from nest in a giant cactus on May 18.	—	—	—	—	—	—	—	—	8	
		<i>Prairie Falcon</i> Station, A. J.	do do	—	—	—	—	—	—	—	—	—	26	
4064	bad. " 26	<i>Erechites alexandri</i>	<i>Geococcyx californianus</i> .	Young of year still in its shell. Barely able to fly a little.	—	—	—	—	—	—	—	—	12	
		<i>mountain Spring</i> A. S.	do do	Parent of nest contains <i>Lamia ludoviciana</i> exibitorides.	—	—	—	—	—	—	—	—	6	
4065	bad. " 19	<i>Buteo borealis calurus</i>	<i>Erechites alexandri</i>	ridges, hazel. Bill, and claws, black.	—	—	—	—	—	—	—	—	23	
		<i>Ash Shrike</i> A. J.	do do	do do	—	—	—	—	—	—	—	—	28	
4066	bad. " 24	<i>Prairie Falcon</i> Station, A. J.	<i>Erechites alexandri</i>	Young with 2 parent.	—	—	—	—	—	—	—	—	23	
		<i>Geococcyx californianus</i> .	do do do	do do do	—	—	—	—	—	—	—	—	6	
4067	bad. April 23.	<i>Erechites alexandri</i>	<i>Geococcyx californianus</i> .	Young with 2 parent.	—	—	—	—	—	—	—	—	28	
		<i>Big Bug Creek, A. J.</i>	do do do	do do do	—	—	—	—	—	—	—	—	23	
4068	bad. May 9	<i>Geococcyx californianus</i> .	<i>Big Bug Creek, A. J.</i>	Young with 2 parent.	—	—	—	—	—	—	—	—	6	
		<i>Geococcyx californianus</i> .	do do do	do do do	—	—	—	—	—	—	—	—	23	
4069	bad. May 5	<i>Erechites alexandri</i>	<i>Geococcyx californianus</i> .	Young with 2 parent.	—	—	—	—	—	—	—	—	6	
		<i>mountain Spring</i> A. S.	do do do	do do do	—	—	—	—	—	—	—	—	23	
4070	bad. April 23.	<i>Erechites alexandri</i>	<i>Geococcyx californianus</i> .	Young with 2 parent.	—	—	—	—	—	—	—	—	6	
		<i>curving New Mexico</i>	do do do	do do do	—	—	—	—	—	—	—	—	23	
4071	bad. May 9	<i>Geococcyx californianus</i> .	<i>Big Bug Creek, A. J.</i>	Young with 2 parent.	(No. 4064)	—	—	—	—	—	—	—	6	
		<i>Geococcyx californianus</i> .	do do do	do do do	—	—	—	—	—	—	—	—	23	
4072	bad. May 23.	<i>Geococcyx californianus</i> .	<i>Big Bug Creek, A. J.</i>	Young with 2 parent.	—	—	—	—	—	—	—	—	6	
		<i>Geococcyx californianus</i> .	do do do	do do do	—	—	—	—	—	—	—	—	23	
4073	bad. May 23.	<i>Geococcyx californianus</i> .	<i>Big Bug Creek, A. J.</i>	Young with 2 parent.	—	—	—	—	—	—	—	—	6	
		<i>Geococcyx californianus</i> .	do do do	do do do	—	—	—	—	—	—	—	—	23	
4074	bad. May 23.	<i>Geococcyx californianus</i> .	<i>Big Bug Creek, A. J.</i>	Young with 2 parent.	—	—	—	—	—	—	—	—	6	
		<i>Geococcyx californianus</i> .	do do do	do do do	—	—	—	—	—	—	—	—	23	
4075	bad. May 23.	<i>Geococcyx californianus</i> .	<i>Big Bug Creek, A. J.</i>	Young with 2 parent.	—	—	—	—	—	—	—	—	6	
		<i>Geococcyx californianus</i> .	do do do	do do do	—	—	—	—	—	—	—	—	23	
4076	bad. May 23.	<i>Geococcyx californianus</i> .	<i>Big Bug Creek, A. J.</i>	Young with 2 parent.	—	—	—	—	—	—	—	—	6	
		<i>Geococcyx</i>												

No.	Date	Locality and Name.	Remarks.	Measurements												Weights					
				Total length	Head and body	Eye	Ear	Muscle	Width of eye	to	Weight	Skin	Length of tail	Hair	Muscul.	Sci	Fore leg	Hand leg	Carcass	Carcass	
16	Feb. 22	1885.	<i>Spermophilus tereticaudus</i> Near Heale's Ranch on New River, A. T.	Mammæ, 10. Belly girth, 165.	265	173	17	34	36	41	45	74	92	24	35	48	68	4	8	22	110.
169	Feb. 22	1885.	<i>Spermophilus tereticaudus</i> Between New River and Phoenix.	Mammæ well developed.	272	165	16	34	36	40	44	85	107	24	36	50	68	3	7	22	110.
170	Feb. 22	1885.	<i>Spermophilus tereticaudus</i> Between New River and Phoenix.	Belly girth, 175.	253	160	17	32	33	38	43	72	90	23	33	46	63	4	7	23	105.
171	Feb. 22	1885.	<i>Spermophilus tereticaudus</i> Between New River and Desert Station, A. T.	Mammæ well developed.	257	166	18	32	34	39	43	73	91	23	34	47	63	3	7	24	112.
172	Feb. 22	1885.	<i>Spermophilus tereticaudus</i> Between New River and Desert Station, A. T.	Mammæ well developed.	270	155	17	32	34	38	42	85	115	25	35	48	66	4	7.5	23	110.
173	Feb. 22	1885.	<i>Spermophilus tereticaudus</i> <i>Lamias harrisii</i>	Belly girth, 175.	252	147	17	34	36	44	45	80	105	23	38	46	69	5	10	24	100.
174	Feb. 22	1885.	<i>Spermophilus tereticaudus</i> Near Maricopa, A. T.	Belly girth, 150. Fort Yuma Spermophile.	257	160	15	30	31	37	41	77	97	24	34	49	64	3	7	22	105.
175	Feb. 22	1885.	<i>Lemus callosus callotis</i>	Belly girth, 170.	240	552	65	98	—	315	128	55	88	73	140	215	265	200	—	52	325.
176	Feb. 22	1885.	<i>Pjetcho Station</i> A. T.	Belly girth, 415. Ears, breadth, 100.	392	276	30	56	60	70	73	92	116	45	62	94	119	8.	15	170	
177	Feb. 22	1885.	<i>Cynomys columbianus</i>	Point of Mountain (near Wilcox), A. T.	382	283	32	59	60	68	74	76	99	48	60	92	115	6	12	155	
178	Feb. 22	1885.	"	do do do	400	296	32	57	59	72	74	81	104	45	60	90	118	7	14	185.	
179	Feb. 22	1885.	"	do do do	390	290	31	56	59	69	71	81	100	46	58	91	119	6	13	180.	
180	Feb. 22	1885.	"	do do do	410	310	32	60	63	73	76	88	100	46	63	95	121	7	14	190.	
181	Feb. 22	1885.	"	do do do	412	306	31	60	61	71	73	88	106	49	64	95	121	6	13	195.	
182	Feb. 22	1885.	"	do do do	375	273	32	57	58	67	71	77	102	44	62	92	114	5	11.5	180.	
183	Feb. 22	1885.	"	do do do	370	280	32	57	58	66	68	73	90	44	58	85	110	5	11.	168.	
184	Feb. 22	1885.	"	do do do	350	272	30	54	56	68	69	58	78	43	55	83	109	6	12.5	185.	
185	Feb. 22	1885.	"	do do do	375	277	31	58	59	71	72	80	98	46	61	92	118	6	12	170.	
186	Feb. 22	1885.	"	do do do	383	281	31	59	60	70	70	83	102	45	62	95	115	7	13	200.	
187	Feb. 22	1885.	"	do do do	390	283	31	57	58	69	71	82	107	41	58	85	106	5	11	170.	
188	Feb. 22	1885.	<i>Lepus callotis texianus</i>	Ears, width, 75.	580	470	55	88	—	265	104	70	110	68	130	180	258	168	—	250.	
189	Feb. 22	1885.	<i>Lepus sylvaticus arizonae</i>	Ears, width, 38.	340	270	38	60	—	145	73	48	70	42	87	98	160	85	—	—	
190	Feb. 22	1885.	<i>Cynomys columbianus</i>	Diagonal Summit, A. T.	390	280	32	61	62	73	77	84	110	48	62	95	118	6	13	185.	
191	Feb. 22	1885.	<i>Lepus callotis callotis</i>	Rillito Station, A. T.	630	525	66	105	—	315	125	77	105	80	140	230	290	195	—	325.	
192	Feb. 22	1885.	<i>Lepus callotis callotis</i>	Red Rock, A. T.	660	560	68	105	—	310	127	75	100	75	133	220	270	190	—	330.	
193	Feb. 22	1885.	<i>Vulpes velox</i>	Between Maricopa and Lila, A. T.	775	445	51	104	120	190	125	270	330	78	114	170	192	82	88	245.	
194	Feb. 22	1885.	<i>Vulpes macrotis merriami</i>	Between Maricopa and Lila, A. T.	280	110	23	36	37	49	40	149	170	12	36	31	73	10	13	72.	
195	Feb. 22	1885.	<i>Spermophilus tereticaudus</i>	<i>Dipodomys williamsi ordi</i>	217	159	17	32	34	41	43	46	58	26	37	51	70	3	8	22	95.
196	Feb. 22	1885.	<i>Spermophilus tereticaudus</i>	Desert Station, A. T. Kept alive and died at Verde.	{ Skill only No measurements taken.												Weights				
228	Feb. 22	1885.	<i>Spermophilus tereticaudus</i>	Squaw Peak, A. T.	{ Skill only No measurements taken.												{ Skill only No measurements taken.				
227	Feb. 22	1885.	<i>Spermophilus tereticaudus</i>	Desert Well, 20 m. N. of Phoenix, Arizona.	{ Skill only No measurements taken.												{ Skill only No measurements taken.				

18



19

Calyptae costata

Measurements of specimen not preserved. ♂ ad. Shot between
Bumble Bee and New River, A.T., March 27, 1885, 89; 116; 47; 24;
cul. 17.5; gape, 21.5; tarsus, 4.6; mid. toe + cl., 7; cl., 3.

22
Nat
No.2.
J. F.
No. 38367

Name.

Locality

Date

1885

23

$\frac{4}{3}$	0	38367	<i>Buteo borealis calurus</i> . Hance's Ranch, 10m. w. of Ft. Verde is greenish-white, fading to pure white in the most numerous and largest at the greater end. No. 2 has the same character, but have irregular markings. No. 3 is the spots No. 3 differs in having the markings of two darkest and largest at the lesser end. embryos slightly advanced. They are of a No. c has the blotches varying from Vandyke-brown shell. They were removed entirely by scraping the <u>nest</u> . While hunting Quails in a steep and nest in a tall piñon-tree. She was lying dead nearly fresh, and I succeeded in conveying bulky, much concave on top, lined with were several feet and a half-eaten leg bird did not approach, but was afterward <i>Harpophilus cinereus bairdii</i> . Maricopa, Arizona.
$\frac{a}{2}$	0	—	at one end. Ground-color, light greenish-gray, ^{and with} and pale lilac. Nest built of coarse sticks, weeds <i>Campylorhynchus brunneicapillus</i> Maricopa, Arizona.
$\frac{a}{5}$	0	—	Shape oval, rather pointed. Ground-color, pale, ^{puffish} gray and dull reddish. Nest a large, handsome among the spiny joints of a large Cactus. lined with fine grasses and bright feathers. The entrance is through a contracted tubular and flew away to a distant Cactus skinning up into the branches and scolding in ? Maricopa, Arizona.
4-T	0	—	Shape, elongated oval. No. "a" was addled and was easily blown. The ground-color of "a" is creamy-white, spotted aggregated to form a circle around the great ? Maricopa, Arizona.
4	0	—	All contained large embryos, and were dried. From wreath about the greater and most dark sepia, reddish were purse-shaped like the Cactus Wren's and placed -works in this region. The parents could not long remain, but have a crevicing or buffy ground

Measurements.

Mar. 25 49X60; 48X59; 49X60. Their ground-color cabinet. No. 1 has distinct smoky blotches of Vandyke-brown, end, but sparsely scattered distributed over the whole egg indistinct and granular, interspersed with paler dots and are most numerous towards the smaller end.

Shades, Vandyke-brown, and ^{pale} purplish-brown, ^{yellowish-brown} ~~yellowish-brown~~ ^{in place} These eggs are slightly weather-stained, and contained rounded oval shape, considerably more pointed at one end, to pale purplish-brown, the paler marking not overlaid by shell down a little.

rocky ravine, I shot a female Red-tailed Hawk upon her upon her three eggs when I climbed to the nest. They were them safely in to camp on Ash Creek. The nest was bark and green twigs of piñon. Upon the margin of the Desert Hare (*Lepus deserticus arizonae*). The male seen hovering over the spot. Height of nest 35 feet.

March 31st a, 20X27; b, 19X27.5. Oval in shape, much smaller spotted with small irregular blotches of light yellowish-brown and grass, with a few feathers of Gambel's Quail.

March 31st a, 17.5X24; b, 18X25; c, 18X25; d, 18X25; e, 18X24.6. buffy salmon-color, indistinctly freckled all over with purse-shaped, horizontal structure, firmly fastened externally composed of bright reddish stems of a plant of Scott's Oriole, Quail, Road-runner and its own species. entrance opening. The parent dropped to the ground close to the ground and alighting at its base, hopping its peculiar voice.

March 31st a, 17X25; b, 17X26; c, 18X26; d, —X— (broken). remaining three contained large embryos and were dried. The all over with brownish-red and pale lilac, the spots end. Nest indistinguishable from those of the Cactus Wren.

March 31st a, 17X25.5; b, 17X25.5; c, 17.5X25.5; d, 18X25.5. color buffy-white; spotted all over but dried in a circle of brown and lilac. The nests in which this and the above ^{were taken} were like their nests in the large spiny, deciduous cacti so confused be seen. The eggs closely resemble some eggs of *Otocoris virens* instead of pure white.

2524

Nest
No.No. of
Parents

Name

Locality

^B ⁴	0	3865, ♀ ad.	<u>Campylorhynchus brunneicapillus</u> . Bet. Maricopa & Casa Grande. Eggs, fresh. Shape, oval, rather pointed. Ground-color, pale gray, giving a general salmon-color.
^B ³	0	3863 ♂ ad.	<u>Harporhynchus cinereus brudirei</u> Sweet Water, Arizona. Shape, elongated oval, rather pointed. Ground-color, pale lilac-brown, and more distinct spots of was built in a mesquite bush, 3 feet from its nest. The nest was similar to a
^a ³	0	3862 ♀ ad.	<u>Harporhynchus curvirostris palmeri</u> Maricopa, Arizona obtuse. Ground-color, greenish-blue, evenly fine and a little sparse upon the little twigs and twigs, with finely dried hair. It is saddled upon the forked
^c	0	3867. ♂ ad.	<u>Campylorhynchus brunneicapillus</u> . Casa Grande, Arizona. Eggs, fresh; shape, oval, rather pointed. Ground-color pale salmon-color, freckled all over with purplish-cholla cactus 5 feet above the ground.
^D	0	—	<u>Campylorhynchus brunneicapillus</u> Casa Grande, Arizona and spotting is paler than the above; the former
^C ³	0	—	<u>Harporhynchus cinereus brudirei</u> Picacho Station, Arizona. embryos. One egg ("a") only, dried embolus.
^B ³	0	3877, ♀ ad.	<u>Harporhynchus curvirostris palmeri</u> . Red Rock, Arizona. shot. She dropped to the ground and ran nest and alighted upon a cactus when I and bristling with rough twigs of mesquite. Built in the crotch of a cholla cactus, "quirt!" Eggs oval, rather obtuse. Ground brown spots, and a few small blotches of pale lavender.
^D ^{3 + 1}	0	3878 ♂ ad.	<u>Harporhynchus cinereus brudirei</u> Near Red Rock, Arizona. <u>Molothrus ater obscurus</u> Eggs, fresh. Shape, elongated oval, rather pointed brown and pale lavender. Nest built in a built thick <u>H. palmeri</u> 's, neatly lined bird flew to the nest at my call and found in the nest. It is a rounded oval over with sepia and lavender, the

Date
1885

Remarks, Measurements, etc.

25

April 1st. a, 17 X 24.5; b, 17.5 X 24; c, 17.5 X 24.5; d, 17.5 X 25.
salmon-color, freckled all over with dull red and purplish to the whole egg. Nest built in a "cholla" cactus April 1st. a, 19 X 27.5; b, 19 X 27; c, 19.5 X 27.
-color, grayish-white, faintly mottled with pale yellowish-brown, but uniformly distributed. The nest the ground. The male was shot as it flew from Mockingbird's, but lined with fine reeds and feathers. April 1st. a, 21 X 28; b, 21 X 27; c, 21 X 28. Eggs, oval, rather spotted all over with brown and lavender. The spots are very The nest is very bulky, composed outwardly of coconuts with grasses and an occasional feather or tuft of joints of a cholla cactus.
April 2nd. a, 18 X 24; b, 18 X 25; c, 18 X 25; d, -x-(broken).
color pale salmon-color, freckled all over with purplish-cholla cactus 5 feet above the ground.
April 2nd a, 17 X 23. Perfectly fresh. Both the ground-color was having a buffy tint. Position of nest similar to above.
April 3rd a, 19 X 26; b, 19 X 27; c, 19 X 26. Contained large Color, not reliable.
April 3rd a, 20 X 27; b, 21 X 27; c, 20 X 26. Fresh. Parent (?) into some sagebrush, but flew back towards the emitted a cry of pain, and I shot it. Nest very large roughly lined with fine roots and stems of plants. 4 feet from the ground. Its note of alarm, "Quirt-quirt," color, pale greenish-blue, minutely spotted all over with lavender.
April 3rd a, 19 X 26; b, 19 X 26.5; c, 19.5 X 26.5. (H. brudirei).
a, 16 X 21 (M. ater obscurus).

Ground color pale greenish-gray, spotted with light "cholla" cactus, much smaller and more compactly with grasses and other soft material. The male was secured. An egg of the Dwarf Cowbird was in shape; Ground color grayish-white, spotted all spotting most conspicuous about the ~~left~~ great end.

226
NestNo.
Nest
of
Parents

Name.

Locality

$\frac{a}{7}$	0	— <i>Harporhynchus redivirus lecontei</i> Red Rock Station, A. J. pointed. Ground-color, greenish-blue, over with brown and lavender, the spots large and form a wreath near that cactus seven feet from the ground vicinity.
$\frac{e}{4}$	0	— <i>Campylorhynchus brunneicapillus</i> . Near Red Rock, Arizona Shape and markings like those already described, except that the purple-gray spotting forms a greater end. Nest built in a mesquite 20 feet fr. ground.
$\frac{f}{4}$	14 young	— <i>Campylorhynchus brunneicapillus</i> , near Piacho, Arizona described, Ground-color buffy salmon-color pale color. Three half-grown young were preserved ^{together} with the addled egg. Nest built
$\frac{e}{4}$	0	3884 ♀ ad. <i>Harporhynchus cinereus brunnei</i> near Billito Station, A. J. hatch. Nest built in the midst of a dense cholla cactus 4 feet above the ground. Eggs destroyed.
$\frac{f}{4}$	0	— <i>Harporhynchus cinereus brunnei</i> near Red Rock, Arizona. fresh. Shape oval, rather pointed. Ground-lavender and yellowish-brown. Built in a <i>Lophortyx gambeli</i> . Red Rock, Arizona. It was taken from the body of a ^{before incubation} dead dead bird ^{before incubation} Lippert our cook. Shape obovate.
$\frac{g}{3}$	0	— <i>Campylorhynchus brunneicapillus</i> . Tucson, Arizona rather elongated oval and pointed. Ground and purple-gray, the latter color a less "cholla" cactus. 2 feet from
$\frac{e}{5}$	0	— <i>Harporhynchus curvirostris palmeri</i> . Fort Lowell, Arizona Egg, oval, ground-color, greenish-blue; fine pale lavender.
$\frac{f}{2}$	0	— <i>Harporhynchus curvirostris palmeri</i> . Near Fort Lowell, A. J. Cactus, 6 feet above the ground. Eggs like <i>Pedioplanis melanura</i> . Between Ft. Lowell & Mtn. It measures: External depth, 85; external
$\frac{a}{5+} \times$	3901, ♀ ad	Nest delicately woven of fine strips of the bark of peat down, lined thickly with cottony the region. The parents uttered a cat-like the nest. Built in the low fork of a mesquite.
(a)	\times 3901, ♀ ad	

Date

1885.

Measurements and Remarks.

27

Apr. 3rd a, 19X29. Fresh. Shape, an elongated oval, rather deeper in color than *H. palmeri*, sparingly spotted all largest at the great end, where they tend to accumulate. The nest was built in a cholla. The parents were not secured, nor seen in the vicinity.

Apr. 3rd 17.5X24; b, 17X24; c, 17X24; d, 17X23.5. Eggs fed. cribed, except that the purplish-gray spotting forms a greater end. Nest built in a mesquite 20 feet fr. ground. Apr. 3rd a, 18X23. Egg addled. More obscurely oval than those light gray spotting predominating, giving the egg an unusual in the nest, two of which (No. 3881 ♀ ad. + 3882 ♀ juv) were in a "cholla" cactus 3 feet from the ground.

Apr. 4th 20X26; 20X27; 19X27; 19X26. Eggs nearly ready to cholla cactus 4 feet above the ground. Eggs destroyed.

Apr. 4th a, 19X26; b, 18.5X26.5; c, 19X26; d, 19X26. Eggs, pale color, greenish-gray, blotched all over with very pale mesqui-bush, 6 feet above the ground.

Apr. 4th 24X32. This egg is pure white, immaculate. ^{had occurred} that we shot it for food, and given to me by Private

April 5th 18X26; b, 18X26. These eggs are unusually large, color, salmon-color, marked all over with dull red giving a dusky or neutral color to the egg. Nest in the ground.

April 5th 20X28.5. Nest built in a cholla cactus. Egg, fed, and evenly sprinkled all over with brown and

April 7th 21X28; b, 21X29. Nest built in a "cholla" that described above ($\frac{c}{7}$).

April 7th The nest contained five young a day or two old. breadth, 65; internal depth, 35; internal breadth, 30 delicate shreds of plant fibre, mixed with wooly particles down of a composite weed growing abundantly in meadow note, and scolded vehemently while I examined

Nest No.	Age	Names of Parents	Name.	Locality.	Date	Measurements and Remarks.
$\frac{1}{5}$	0	—	<u>Campylorhynchus brunneicapillus</u> .	Bet. Ft. Lowell & Mtn Spring, Ariz.	1885.	
2	X	—	<u>Phainopepla nitens</u> .	near Ft. Lowell, Arizona Both parents were shot but spoiled before taking. fork of a black ash, ^{20 feet} beside a dry arroyo. The eggs in shape are an elongated oval grayish-white, strongly marked, chiefly at both (zone) of pale slate-lilac blotches near as some of lighter brown, scattered over	April 7 th	$a, 17.5 \times 24$; $b, 17.5 \times 24.6$; $c, 17.5 \times 25$; $d, 17 \times 24.5$; $e, 18 \times 24$. described above. Nest built in a paloverde 10 feet high.
11	—	3902 ^{fad}	<u>Lophotrix gambeli</u> .	Between Ft. Lowell & Mtn Sp.	April 7 th	$a, 24.5 \times 32$; $b, 24 \times 30$; $c, 24 \times 31$; $d, 26 \times 31.5$; $e, 24 \times 33$; $f, 24$; $g, 24 \times 31.5$; $h, 24.4 \times 32$; $i, 24.5$ tapering to the small end. The ground- color, specked dotted, ^{spotted, coarsely} all over some of the spots opaque because overlaid shell covering them. The female was seen at the root of a small bush in the bank return, clucking and calling to where a <u>Polioptila melanura</u> . San Lrio, Arizona
$\frac{13}{4}$	X	—			Apr. 13 th	$a, 11 \times 14$; $b, 11.5 \times 14.5$; $c, 11 \times 14$; d, 14.5 11×14.2 . in a ground-color of greenish-blue, freckled all over with wreath about the great end, together with pale lilac the larger end. The nest measures in external depth, 70; breadth, 35. Firmly and delicately felted of fine stems of plant fibre, softly lined within with the silk from together with rabbit-hair and a few feathers. Nest a thorny evergreen-barked "grasewood" as I used to call it. <u>Kodariinia queearini</u> .
5-4	0	—	<u>Carpodacus frontalis</u> .	Stein's Pass, New Mexico	Apr. 14 th	15×21 . Nest built in a ^{red} cedar. Ground-color, light of dark sepia brown at the great end.
$\frac{1}{2}$ -5	X	—	<u>Polioptila melanura</u> .	near Lordsburg, N. Mex. 3 feet from the ground. Materials the same contains more feathers and cottony down felted, considerably contracted at the measurement in height, 50; outside breadth	Apr. 15 th	Nest just finished. Built in the fork of a grasewood above except that it lacks the hair and asclepias, and from the stems of some weeds. It is well and firmly bun, and, like the others gray in color. Outside 65. Inside depth 38; breadth, 28.
$\frac{1}{3}$	0	—	<u>Sturnella neglecta</u> .	near Glaz, New Mexico of them have a clear white ground, while	Apr. 18 th	21×28 ; $b, 21 \times 27$; $c, 20 \times 27$. Perfectly fresh. Two the ^{3rd} ("c") has a greenish tint. All are spotted, chiefly

2³⁰
Nest.
No.2¹
Nest.
No.Nos.
of
Parents.

Name.

Locality.

Date
1885

Measurements and Remarks.

31

1411
A
12.

0

at the throat and with reddish brown and which was artistically robed with dr. a tuft of the short gramma grass in a Calipepla squamata. ^{Foothills of the Gila River} mountains near Bowie St., A.T. 24X31; 23.5X31; 24X30; 24X32; in form obovate, or rounded at one taper creamy-white finely and uniformly the grassy slopes, still about a mile from arroyo. I almost trod upon a ~~it~~ nest. The nest was in the centre of a tuft of species, surround by yellow poppies, red flowers. I followed the parent to the ran so swiftly and hid so cleverly that and I missed her."

2/3

0

3960^{ft. ad.} Campylorhynchus brunneicapillus Nts., near Bowie St., A.T. described already. The nest was built bulky, composed outwardly of handsome feathers, among which were those of squamata, Scott's Vireo, Road-runner

a/1

x

Tyrannus (vireolans?) Dragoon Summit, A.T. creamy-white, sparingly but boldly identification was not positive, although vireolans; but this egg does not agree in a black walnut (Juglans nigra) shell. The nest is rather bulky, composed together into a compact structure measuring depth, 30; internal width, 90. Many interwoven in its structure, and help to form a

a
H. Young.

Pipilo fuscus mesoleucus Dragoon Summit, A.T. Ground color, creamy-white, with a very lines of dark, purplish-brown chiefly ^{custom} markings, and numerous blotches. The nest was built in two young and an addled egg, which chiefly of small sticks, weed-stalks & bark from the grape-vines. The parents flew

lilac. The female was flushed from her nest, grasses, placed upon the ground close beneath bird of golden poppies with orange centres. (Apr. 30th) 24X32; 24.5X32.5; 24X31.5; 24X32; 24X32.7; 24.5X33.2; 24X32. Eggs nearly fresh, ^{concentrating a uniform point.} ring and pointed towards the other, ground color spotted all over with yellowish-brown. "White-top" Quail, sitting upon her twelve eggs grass, perfectly circular lined with feathers of its own and close beside a cactus (1) bearing handsome arroyo, and got within a few feet of her, but she she got nearly out of range and then flew away,

(Apr. 30th) 18X24; 17X24; 17.5X24.5. Eggs, fresh; like those in a polo verde, seven feet from the ground, very grasses and red plant stems, lined thickly with both species of Quail (Lophortyx gambeli and Calipepla and Mourning Dove.

(May 3rd) 17X24. Elongated oval. Ground-color, ~~not~~ blotched with chestnut and pale grayish-lilac. The bird seen near the nest was undoubtedly S. with Dr. Brewer's description. The nest was built feet from the ground and contained a single fresh of small twigs and grass, stems of plants felted neatly in external depth, 90; internal width, 130; internal cottony, lomentose stems of a yellow composite are close, soft lining, to which are added a few feathers and some rabbit-hair.

(May 3rd) 19X24.5. Egg, oval, obtuse at the small end. Faint bluish cast, with a few bold dashes and zig-zag around the great end. There are a few ^{older} lighter brown ^{and pease} scratches. of faint lavender also aggregated at the great end ^{and} a grape-vine, six feet from the ground. It contained latter 2 preserved. The nest was bulky, composed and grasses, together with ribbon-like strands around me and uttered low cries of distress.

32
Nest
No.

No.
of
Parents

Name.

Locality

Date

1885.

33

Measurements and Remarks.

32	0	<i>Gecoccyx californianus.</i>	Between Benson and Wm. Sp. scarcely perceptible, bluish tinge, immaculate an average nest of the Green Heron, but for living, being constructed otherwise, mesquitt 4 $\frac{1}{2}$ feet from the ground.
5	0	<i>Mimus polyglottos.</i>	Mountain Spring, A. J. Eggs, fresh, oval; ground-color a dull chiefly at the larger end, in one egg, alder, 7 feet above the ground
2	x	<i>Phainopepla nitens.</i>	Mountain Spring, A. J. extremity. Ground-color, grayish-white egg These spots have an olive cast and around the great end, and a few scattered 20 feet above the ground. The male was The nest was saddled on to a large dry a few dry twigs, the rest of the nest of plants and fine twigs and stalks of 40; external breadth, 110; internal <i>Proctilulus alexandri.</i> Mountain Spring, Arizona -mal depth, 33; external width, 42; inter- grape-vine. Composed of frayed strips of with the cottonwood down.
B	T	<i>Buteo borealis calurus.</i>	Between Mountain Spring and Fort Lowell, Arizona The shell is punctured with minute holes shape and color the egg is not unlike flew from the nest in a mesquite-tree escaped. It was 15 feet from the ground and weed-stalks, having considerable
a	4-3	<i>Icterus parisorum.</i>	Before Fort Lowell Arizona. Oval in shape, obtusely pointed at the dots and lines of blackish-brown about spots, most of which are aggregated as she flew from her nest, which is tall soapweed. It was woven of the strong cup-shaped, contracted at the base

May 4th. 31X40; 31X41. Shape, elliptical-oval, white with a
This nest, like two others found the same day, resembled
contained a little grass, stems of plants and covering
entirely of small sticks, placed in the fork of a
Other nests were in mesquites 6 and 15 feet high.
May 4th. 19X26; 19X25; 19X25; 19.3X25.5; 19X25,
bluish-green, blotched with yellowish-brown and purple.
forming a broad band around that extremity. Nest in a box
May 4th. 16.5X23; 16X22. Eggs, oval, pointed at the small
marked with dark purplish-brown spots. In one
are larger. There is a broad zone of slate-like blotches
dots of light brown. Nest built in a walnut-tree,
sitting upon the eggs, which were slightly incubated.
horizontal
upon the eggs, which were slightly incubated.
work of a black walnut tree (*Juglans nigra*), resting on
composed of a mixture of cottony ~~heads~~ and stems
wads, together with a few shreds of bark. External depth,
depth, 2.5; internal breadth, 5.6.
May 5th. The nest contained two young. It measures in exter-
nal depth, 18; internal width, 18. Placed in a ^{soft} ~~swinging~~
bark, silky vegetable fibres, hair and feathers, lined apparently
May 5th. 45⁴⁴X60. Oval in form, pale blue, immaculate
in many places, as if done with a pin-point. In
that of the Blue Heron (*Ardea herodias*). The parent
upon my firing at some Scaled Quails near by, and
strongly built of coarse sticks lined with grass
concavity.
May 5th. 17.5X23. Egg contained an embryo. Ground-color
smaller end. Ground-color, gray, marked with a few
the larger end, and blotched with pale lilac-brown
in a circle about the great end. The female was shot
as suspended beneath the dependent fronds of a
white ^{fine} threads of thin plant, lined with cottony fibre
an exquisitely structure.

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Nest
No.Nos.
of
Parents

Name.

Locality.

3-1	0	<i>Harporhynchus cinereus bimaculatus</i> (slightly greenish) gray, mottled all over with in a grape-vine overhanging a small tree	Fort Lowell, Arizona
a 5-2	0	<i>Lanius ludovicianus excubitorides</i> . Tucson, Arizona ground-color, buffy-white without any brown and lilac. The arrangement are pretty evenly distributed over the whole circle around the great end, while in the small end. The nest was coarsely built in a dense mesquite, close to the sat closely upon her nest, and was in defending their progeny and cried	
a 4	0	<i>Muscicapa cinerea</i> Tucson, Arizona ^{not orange-color or pale} Ground color, buff, uniformly marked laid on in longitudinal dashes and more root of a hollow stalk, open above, and Both birds were shot, but decayed before	
D 5-3	X 3994, ad.	<i>Polioptila melanura</i> . Red Rock, Arizona greenish-blue ground, freckled all over with reddish end, together with a few pale blue or drab spots than those of Set. B ^B , and the eggs are in the fork of a greenwood five feet fine material including fine shreds of bark feathers. all closely interwoven, the fine Measurements. External depth, 80	
B 3	0 4010, 2 ad. 4011, 7 ad.	Contracted somewhat at base. <i>Harporhynchus bimaculatus lecontei</i> . Between Cañon Grande and water, Arizona. tapering to a point at the small end rusted Ground-color, greenish-blue, somewhat yellowish-brown and lavender sparingly small extremity. in "B" ^{and C} the marks are of ous and confluent near the great end, The nest was built in a mesquite, resting a neighboring branch. It was about 7 widths, resting upon a mass of large feathers. Both parents were secured	

Date

1885.

Measurements and Remarks.

35-

May 7th. 18.5 X 25; 18.5 X 26. Egg, fresh; ground-color, light
pale yellowish-brown and lavender. The nest was built
beside the Santa Rillito Creek. The female parent was shot.
May 7th. 19 X 24; 19 X 24; 18.5 X 24. Egg, rounded oval,
tripe of green, blotched with paleumber ^{and brown}, purple
of the markings differs in the three eggs. In one they
egg, in another the darker blotches form a distinct
Third there is an equally distinct zone around the
built of sticks lined with grass, weeds and feathers
roadside. The eggs contained large embryos. The female
nearly captured by hand. Both birds were fierce
loudly.

May 7th. 17 X 21; ~~17~~ X 22; ~~17~~ X 22; 17 X 21. Oval in shape
with purplish-brown and lavender both colors
or less blending in places. The nest was built at the
close to the ground. Not composed of hair and feathers.
I found time to skin them.

May 8th. 10.5 X 14; 11 X 14. Oval in shape, having a
brown spot, tending to form a wreath around the great
near the great end. The spots are a trifle smaller
also appreciably less in size. The nest was placed
above the ground. It is gray in color, composed of
plant stems, fine vegetal filaments and a few
delicate ribbons of bark forming the bulk of the structure
external breadth, 60; internal depth, 45; breadth, 35.

Sweet
May 11th. 19 X 29; 20 X 28.5; 21 X 29. Shape an elongated oval
of being rather rounded and obtuse as in *H. palmeri*.
duper than *H. palmeri*. "a" has large blotches of ~~fat~~
scattered over the egg, a few extending nearly to the
the same colors, but reduced to fine spots quite num-
but scarcely extending to the opposite extremity at all.
upon a for and receiving additional support from
just above the ground, composed of fine grasses and
sticks loosely placed, and lined grass and a few
are shot directly from the nest.

Nest
No.Nest
No.No. of
Parents

♂ Name

Locality

15	0	<i>Lanius ludovicianus</i>	Maricopa, Arizona
		Oval. Ground-color, cream-white, scarcely brown, great end with yellowish and purple brown	nest built in a mesquite and sticks, internally of weed-stalks, grass
17	0	<i>Pipilo aberti</i>	"Gila" on the Gila River. <i>Cessaria borealis</i> The nest was built in an arrowwood, ribbons of inner bark of the cottonwood pale blue, each egg marked at the dots and dashes of dark brown, appear spots of pale lavender. A few of the except the little end. One egg has a <i>Philopelia leucoptera</i> Salt River Phoenix, Arizona at both ends. Pure white, immaculate and fragile in structure, built upon
17	0	<i>Pipilo aberti</i>	Phoenix, Arizona. Shape the same as the set described above marks are fewer and almost restricted to Nest built in the fork of a mesquite <i>Pipilo aberti</i> . Phoenix, Arizona
17	0	<i>Pipilo aberti</i>	end. Ground-color, light blue, marked small reddish-brown spots; but here cottonwood hedge by the roadside, ten feet above the ground.
17	0	<i>Pipilo aberti</i>	Phoenix, Arizona. fresh. Oval, rather obtuse. Ground-color, cinnamon reddish-brown zigzag lines The nest was resting upon a few and ribbons of bark of the cottonwood the road.
23	0	<i>Harporhynchus palmarum</i>	near Hall's on New River, A.T. ground-color, greenish-blue, finely and lavender. As usual the nest was shielded by the branching joints of embarrassment in attempting tastefully with reddish weed stalks.

Date:
1886.

Measurements and Remarks

May 12th 18.5 X 24.5; 18 X 24; 18.5 X 24; 18 X 23; 18 X 24.5.
Spotted with greenish-spotted, chiefly in a zone about 1/4-
and lavender, the colors sometimes bleeding. A few spots extending to the opposite extreme
four feet from the ground. Composed externally of
fine roots and a few feathers.

May 13th 18.5 X 24.5; 19 X 26; 19 X 25; 18.5 X 25.5.
about 4 feet from the ground, composed chiefly of
The eggs are oval, having a ground-color of
greater and with a few bold spots, and many lines
perfectly black except in a strong light, and a few
smaller dark spots are scattered over the whole egg.
Wrath of delicate lines and spots around the great end.

May 13th 22 X 29. Shape, oblong, nearly equally rounded
Nest composed of sticks and stems of plants, transparency
a slender willow among ~~the~~ closely growing branches.

May 14th 18 X 24; 18.5 X 25.5; 19 X 24; 18 X 24.
but with a few markings of brownish red. The dark-brown
the great end. They are less spotted than the other set.
in a dense mesquite grove in the edge of town. Height, 15 feet.

May 14th 18.5 X 26. Rather oblong and obtuse at the small
about the great end with blackish-brown, and a few
are no lavender spots. The nest was built in a
feet above the ground.

May 14th 19 X 23.5; 18.5 X 25; 19 X 26; 18.5 X 25. Eggs
pale blue, marked at the greater end with black and
dots and dashes. There are no lavender spots.
strong twigs, and composed, as usual, of weeds
The nest was built in a cottonwood hedge ~~near~~

May 15th 20 X 26; 20 X 27; 20 X 27. Oval in shape;
evenly spotted all over with yellowish-brown and pale
very large, built in a "cholla" cactus, and so
deciduous spines that I experienced considerable
to reach the eggs. The inner cavity was lined
and ~~with~~ some fine roots.

Nest
No.

No.
of
Parents

Name.

Locality.

Date
1885.

Measurements and Remarks.

$\frac{2}{0}$	X 4040, ^{bad.}	<i>Polioptila melanura.</i> Near Hall's Ranch, New Mexico. of a gray color, composed of fine shreds cottony product of the cottonwood, not bright externally, 80; breadth externally, 60.
$\frac{1}{1}$	0 —	<i>Zophotyx gambeli.</i> Swilkins, on Agua Fria. Oval, pointed at the small end, Spot-
$\frac{1}{1}$	0 4047, ^{bad.}	<i>Buteo abbreviatus.</i> New River, Arizona. at one end. Clear bluish-white, in not resist the temptation to follow its sharp whistle of this Hawk, and a screamed loudly. It wheeled and looking for its nest in the trees saw the female sitting upon her. With a loud whistle she flew. The nest was coarsely built cavity, lined with a few cotton
$\frac{1}{1}$	0 4048, ^{bad.}	cottonwood 25 feet above the ground.
$\frac{B}{2}$	0 4053, ^{bad.}	<i>Melopelia leucoptera.</i> New River, Arizona smaller at one end. The nest was branchless, was frail in structure, were immaculate white. The male
$\frac{a}{3}$	X 4049, ^{bad.}	<i>Cardinalis orig. igneus.</i> Gillett on the Agua Fria, ^(slight) . elongated oval, obtuse at the ^{purple} smaller with umber brown and lavender entire butt. The nest was built close tall arrowwood (<i>Tessaria borralis</i>), about nest uttering a sharp metallic call-not secretive. Their crests were erect, and ammunition. The nest is composed of lined with small roots and and saucer shaped, measuring in external 60; internal breadth, 70. Locality, a
$\frac{B}{2}$	0 4050, ^{bad.}	<i>Buteo abbreviatus.</i> Agua Fria near Swilkins pointed at the smaller at one "a" is finely sprinkled with dark sepia spots having a smoky, granular appearance.

May 15th Newly finished nest, built in fork of a mesquite; of bark united by fine silky fibres, lined with other bits ~~hair~~ and some white horse-hair from mane or tail. Internal depth, 45; internal breadth, 37 mm.

May 16th 24.5 X 31.5. A single egg found upon the ground, red with olivaceous brown blotches upon a pale buff ground.

May 16th 43 X 55. Egg rounded oval, slightly smaller maculate. The Hawk was so attractive that I could in a large grove of tall cottonwoods. I heard the moment later one flew close over my head and came towards me again, when I shot it. After thereabout, I walked a little further up stream, and nest in a cottonwood near the opposite side directly towards me, and was also shot. of rather large sticks, with considerable cottonwood leaves only, and placed in the fork of a

May 16th 22 X 31; 22.5 X 32. Shape oblong-oval, noticeably, built upon an oblique willow trunk among some composed of sticks lined with some grass. The eggs laid sat closely upon the eggs until driven off and shot.

May 16th ~~18.5 X 27~~; 19 X 27; 19 X 27. ^{barely tinged with olive, all} Egg ^{end,} Ground-color, ~~green~~-white, dashed all over, the blotches becoming confluent in one egg over the by the roadside, conspicuously placed in the fork of a 6 feet above the ground. Both parent came about, the uttering much anger but with rather shy and both could have been secured had I not run out of quantity of plant-stems and ribbon-like pieces of bark and grass, the inside being smoothly lined. Depth, 120; external breadth, 135; internal depth, narrow canon several hundred yards from the stream.

May 17th a. 45 X 63; b, 43 X 61. Egg oval, considerably ^{more yellowish} end. Ground-color, white, weather stains in spots. Brown ~~specks~~, and a few pale brown and lavender ~~etc.~~, all of the marks most numerous at the large extre-

Nest
No.No.
of
Parents

Name

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"b" is evenly blotched with very pale large embryos and were emptied of ~~flu~~ screaming towards me when ~~Ara~~ flows through a canon below from a large group of unusually ^{the trees are} big discovered in a tall cottonwood clou sat upon the eggs, but flew out of not return but disappeared after I waited several hours did not return and was exactly like the first one green leaves of cottonwood attached and contained the two egg, which first found; but there can scarcely be ~~was~~ shot close to the nest, while the nest, and was black, with white ^{bands} tail first nest was absolute. The female towards me and was shot ~~before~~

^{immaturely} May 17th 4058. ♀ ad. Melopelia leucoptera Black Canon near Bumblebee pointed at the small end, pure built in a green-barked acacia or polo position. The female sat upon the nest ⁱⁿ my hand, when she flew a little ca-coo") mournfully, until shot.

^{Agua Fria at Swellings} May 17th 4051. ♀ ad. Cardinalis virginianus igneus Ranch, Arizona obtuse at the small end. Ground-color: small brown and purplish-lavender dashes, which spotted with dark brown, rusty brown, and the nest was built on an oblique willow and strips of river bank; shallower nest several times before she could be pointed at the small end. Immature

Zenaidura carolinensis, near Antelope, Arizona May 18th 4052. — Mimus polyglottos near Bumblebee, Arizona Ground-color, greenish-blue, blotched in a barberry, ³ feet from the

yellowish-brown and lavender. The eggs contained their contents with great difficulty. The female I entered the woods and was shot. The ~~ague~~ Swallows and the cottonwoods in the level bottom. I searched a long time for the nest which I finally to the place where I shot the old bird. The male ~~circled~~ before I could obtain a shot, and did wheeling over the canon a few times, and although ^{50 feet from the ground} The nest was reached with infinite exertion - composed of sticks, lined only with a few twigs. The nest was rather concave differ in size, shape and markings from that any doubt about the identification, for the parent other bird was distinctly seen when flying from the ~~tree~~. On the other hand the identification of the was seen upon the nest; she arose and flew straight ~~she got out of view~~. Her mate was also procured.

May 17th 23X32; 23X31. Oval in shape, obscurely white immaculate, shining somewhat. The nest was ^{on the upper slope and} directly over the roadside in a conspicuous and did not leave until I attempted to catch her way up the hillside and began to coo ("coo-oo")

May 17th 21.7.5X24.5; 16.18X25; 18X26. Elongated oval, ~~green~~ bluish-white, placed all over uniformly, with tend to be elongated longitudinally. "C" is more conspicuously purple marks, most numerous near the great end. ^{supported by small twigs,} in trunk, ten feet from the ground, of stems grasses

then set No. 3. The female was flushed from the secured. The male was so shy that I could not secure it.

May 18th 21X29; 21X29. Eggs elongated oval, rather pale white. Nest built on a shelf of rock on a cliff.

May 18th 18X25.5; 19X25; 19X24.5; 19X25. Oval all over with rusty brown and purple. Nest built ground.

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Nest
No.Nest
No.
Net. No.No.
of
Parents

Name.

Locality

70	—	<u>Mimus polyglottos</u>	near Antelope, Arizona
J5	—	<u>Campylorhynchus brunneicapillus</u>	near Antelope, Arizona.
Q4	—	<u>Aphelocoma woodhousei</u>	near Bumblebee, Arizona
Q7	4062, ♀ ad. 4063, ♀ ad.	<u>Cardinalis virginianus, jacus</u>	Bigbag, Arizona
D5-2	0	<u>Geococcyx californianus</u>	Bigbag, Arizona
2	0	<u>Zenaidura carolinensis</u>	Ash Creek, Arizona.

*The above nests and eggs comprise 26 species, represented by nine(9)

Date
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Measurements and Remarks.

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May 18th, 19X27. Shape, elongated oval, obscurely pointed and finely granulated with rusty-brown and purple, and. Nest in mesquite, 4 feet above ground.

May 18th, 17.5 X 23.5; 17.5 X 23.5; 17 X 24; 17.5 X 24.5. —color, salmon-color, marked all over with dull red and mesquite, 5 feet from the ground.

May 18th, 21X29; 21X29; 21X29; 21X29. Eggs absolutely marking. Oblong oval in shape, with a greenish-shades of brown, and purple. The colors are exactly birds taken (Set No. 4) same day. "As we ascended, we came to scrub oaks and cedars, and I began to minutes one was seen in a deep ravine, amongst the nest close beside the road, in a dense thicket of, and slipped off upon the ground in the thicket, out by thrash the bushes with a pole. The nest rootlets. The eggs, four in number were just preserved by breaking them in two."

May 19th, 19.5 X 27. Egg rather elongated oval; ground-color, and yellowish-brown, the spots confluent on the built among some drooping branches of a large was a nest of Zenaidura carolinensis. It was a deep, well-made camp. Both parents were preserved. The nest was firmly it partly nested. The situation was so unusual that like a wood thrush.

Nest externally of coarse sticks, then a layer of cottonwood leaves, lined with roots,

May 19th, 31X42; 31.5 X 42.5; 28X41. Shape oblong-oval pure white, immaculate, chalky, marked with furrows ^{platfor} uneven structure, placed in the center of an isolated partly covered with rubbish. Two of them were broken was built of sticks, leaves and grass, with several admixed.

May 19th, 21X27; 21X29. oblong-oval, but slightly was flushed from beneath my horse's feet while of shrubs, rocks or trees. The eggs were in a hollow as a nest whatever. Eggs, immaculate ^{white}.

and irregular ridge.

nests and 65 sets of eggs, making in all 186 eggs. 18 new species

Narrative and Itinerary of the Expedition.

March 25th 1885.

We left Fort Verde, Arizona, in a pouring rain, but it soon cleared off, and the ride was pleasant.

We marched 16 miles to Ash Creek, upon which we encamped. The wagons moved slowly and did not reach camp until after dark, on account of muddy roads. The teams had to double up, and pull one wagon at a time. Captain Russell's private buggy broke down and was tied on behind one of the company wagons.

Our party, at starting, consisted of Col. LeLendem, Capt. and Mrs. Russell, Dr. ^{Perry} LeLendem and myself, with "K" Troop of the 3rd.

The Doctor and I stopped at Hane's Ranch at the Cienega and hunted for an hour. Along the creek is a fine growth of deciduous oaks and a number of evergreen oaks. Among these trees were a number of Lewis's Woodpeckers (Ampelornis torquatus), of which we shot several. While hunting Gambel's Quails (Lophortyx gambeli) in a rocky gulch, I shot a female Red-tailed Hawk (Buteo borealis calurus) sitting upon her nest in a tall pinon-tree (Pinus edulis). I climbed the tree, and took from the nest three eggs, nearly fresh, which I succeeded in carrying safely into camp.

A few of the cottonwoods along the Verde River were just beginning to show a few green leaves, but a number of those in Copper Canyon, together with several other trees, were in leaf. The season is manifestly earlier this year than on the same day of last, when we first arrived at Verde; for many plants which are now in flower were just coming out of the ground last year.

Among the flowers seen in the canon were bunches of yellow violets (Viola nuttallii),

enfillare, purple verbenas, Indian paints, large yellow cruceiferae, large yellow umbeliferæ, and low, white ones, after we left the canon. A pretty blue liliaceous plant resembling a lark or hyacinth was flowering profusely.

Several Mockingbirds (Mimus polyglottos) were seen between Copper canon and our camp on Ash Creek. They were afterward abundantly present nearly throughout the march. I had seen none in the Verde this year.

The handsome little Black-throated Sparrow, were everywhere abundant, and singing pleasantly.

When riding through Copper canon we saw a Raven (Corvus corax carinatus) fly to its nest upon a ledge in a crevice in the face of a high cliff.

Woodhouse's Jays were exceedingly abundant; and Say's Fleatethers (Sayornis sayi) were common. Buteo borealis calurus (the Western Red-tail). - The nest found (see note on opposite page) was built in a pinon, 30 feet above the ground. I saw the female parent leaving the nest. As she raised her head up over the edge of the nest I shot her with No. 7 shot, with which I was just going to kill some of Gambel's Quails, a large flock of which were running up the rocky gulch before me. The Hawk recovered from the shock pretty soon and began to flutter upon the nest, finally falling to the ground. I then climbed the tree, not without trepidation on account of the slender top, which bent with my weight. The nest was bulky, composed of large twigs and branches, lined with strips of cedar bark. It contained a considerable depression in which rested the three eggs, which were afterward found to contain small embryos, which were, however, easily removed, and the clutch brought safely home.

About the nest, and upon its edge, were several legs of the Cotton-tail Rabbit (*Lepus sylvaticus arizonae*).

Large flocks of Maximilian's Nuthatches (*Gymnocitta cyanocephala*) roosted in the Cedars on a high ridge near our camp.

McNally, my striker, shot a Northern Jackass Bear (*Lepus callotis texianus*) with his carbine. It was a ^{young} female, and contained 2. foetuses.

March 26th

While breakfast was cooking, I found time to blow my Hawk's eggs, the parent having been skinned last night while waiting for the wagons to come in.

We left Ash Creek at 7.30 a.m., and marched 36 miles to Bumble Bee. Between Antelope and Bumble Bee were seen the first Giant Cacti (*Cereus giganteus*).

We left Ash Creek when we broke camp, and followed a trail over higher ground. On the grassy slopes I shot a new bird, the Western Yellow-winged Sparrow (*Coturniculus passerinus perpallidus*), which ran from beneath our horses' feet and vainly attempted to hide in the too short grass ~~beside~~ ^{near} the trail, where I flushed it and shot it. We were struck by its resemblance not only in habits, but in color pattern, to some of the quails. Its back is quite like the female Massena Quail's; and a still more apt comparison might be made with the common Quail of the Old World (*Coturnix* - whence the generic name although Dr. Lorus says [Lubek List N. Am. Birds, 1882, p. 52] "arbitrary diminutive of *coturnix*, a quail; said to be so called from the resemblance of the sound of its voice to the sound of the word."). Only one of these birds was seen.

Several miles farther on we came to Ash Creek again and skirted it for a little way, finding a beautiful grove of cottonwood in full foliage. Here I procured a specimen of the diminutive Yellow-headed

Lit, and found a number of Song Sparrows (*Melospiza fasciata fallax*) of the same peculiar characteristics as those occurring in the Verde Valley and Great Colorado River, which have not yet been characterized and subspecifically named; therefore I continue to designate it as *Melospiza fasciata fallax* [which it is].

When we reached the Agua Fria, we halted for a noon rest in a grove of cottonwoods of remarkably large size. We measured the largest with a tape-line, four feet above the ground. It measures 34 feet in girth, and has no excrescences or morbid growths at that part, the trunk being symmetrical and rather tall, although the branches are very long and drooping, nearly reaching to the ground. At this place dozens of Sparrow Hawks (*Spinimimus sparverius*) were rolicking in the tree-tops. They were doubtless mating. Their loud cries reminded me of those of the Flickers - still more of the Gila Woodpeckers. A very rare North American bird, the Mexican Black Hawk (*Nrubitinga anthracina*) was here seen, but could not be shot. I took the first North American specimens that have yet been secured north of Mexico, on the Rio Verde last season.

As we advanced, descending slowly, we found vegetation more and more advanced; but most of the flowers in bloom were such as occur at Verde a few weeks later. Among them were umbelliferae, cruciferæ, compositæ, Indian pinks, cypress, orange-colored poppies, primroses (white), and a fringed legume with compound leaves like a small *mesquitæ* ("goat-in-the-mist", Mrs. Russell said they resembled), and some large and handsome legumes of the genus *astragalus*.

Near Antelope, we saw "H" Company marching ahead of us, towards Bumble Bee, from Whipple.

We reached Bumble Bee just at sundown. Several birds were shot which unfortunately could not be skinned. I was too tired to sit up longer than to skin my new bird, and the Yellow-headed Tit.

The mammals seen were Coyotes, Rocky Mountain Fox-tailed Squirrels in rocky cañons, a few Gila Chipmunks in rocky places, Harris's Chipmunk, Desert Hare, Northern Jackass Bear (a very young one was shot, which screamed loudly when caught), Antelope, and a Mule Deer shot by a bandsman near Antelope.

The birds and mammals seen each day are shown in the table and reports sent to the Surgeon General; but I will give some notes occurring passing in my field note-book, from time to time.

Mountain Mockingbird. - One shot, abundant; singing.

Red-vented Thrasher. - A few seen; singing.

Ruby-crowned Kinglet. - Abundant on the Agua Fria.

Yellow-headed Tit. - Many nests seen in haw bushes on the flats of mesquite, etc., along Ash Creek.

White-bellied Swallow. - One flock on the Agua Fria.

A few Rough-winged Swallows, White-rumped Shrikes, House Finches and Oregon Snowbirds were seen.

The Western Meadow Larks, Western Grass Finches, and Black-throated Sparrows were singing.

A Californian Condor (Pseudogyps californianus) was seen feeding on a dead horse with some Ravens, but could not be approached within rifle range although the Ravens were not shy.

A few Red-shafted Flickers (Colaptes auratus mexicanus) were seen. Some of them may have been Colaptes chrysoides (Mallard's Flicker).

Gambel's Quail was everywhere common. The males calling their sad notes from the tops of bushes on all sides. We always kept the mess abundantly supplied with them, as the Doctor seemed never to tire of shooting at them.

March 27th.

Colonel Brackett arrived at Bumble Bee an hour before we did, and took command. His Adjutant and Quarter Master (Lunts, Stever and Hardee) and Captain Wessels and Lieutenant Rivers with "H" Troop, and the non. com. Staff and Band were added to our party until we left Maricopa, when they all proceeded to Bowie Station by rail, except the officers (Capt. Wessels and Lieut. Rivers) and troops of "H" Co. of the 3rd who marched with us, commanded by Captain Russell all the way.

Revolts sounded at 5 o'clock a.m. and we left Bumble Bee at 6.30, marching 25 miles to Hall's Ranche on New River.

Col. Brackett gave me permission to ride ahead of the column with Doctor Glendinning. The road through Black Canyon was much better than I anticipated. Gila's Hummingbird (Calyptae costae) was found at the beginning of the canyon, and soon became very abundant, although flowers were quite scarce. At the foot of Black Canyon we found the first Gila Woodpeckers (Centurus uropygialis) and Gila Wrens (Campylorhynchus brunneicapillus).

When we reached the Agua Fria, near Gillett, the Cape Saint Lucas Cardinals (Cardinalis virginianus signatus), Vermilion Flycatchers (Pyrocephalus rubineus mexicanus), Yellow-headed Tits (Auriparus flaviceps) and Costa's Hummingbirds (Calyptae costae) were very abundant.

The foliage of the cottonwoods here, and farther on along New River near its junction with the Agua Fria, had assumed the dark rich tint of green characteristic of the fully developed leaf, and the trees were feathered with the "cotton", which hung in festoons from the drooping branches. I gathered a quantity of it at Hutton's for stuffing and packing specimens. Harris's Chipmunks were here abundant,

and young of both species of Rabbits (L. L. sylvaticus arizonae & Callotis texianus) of very small size.

An other Jackass Hare was killed, and, like the first, contained but two young. The first Vireos (Vireo pusillus) in full song. The greatly increased number of flowers show that the season here is far in advance of Verde, being considerably lower. When we left Verde, two days ago, only a few cottonwoods showed any ~~signs~~ foliage, while those at this camp are in full fruitage. The "cotton" is used for filling mattresses, and is soft and silky. It can be gathered in large handfuls. The Agua Fria and New River both contain many small fishes and leopard frogs. Only a few lizards have been seen, although more abundant to-day.

Giant Cacti (Cereus giganteus) are abundant all along the way, which is mountainous on every side. The whitish "cholla" cacti, densely clothed all over with long slender spines, with deciduous joints very easily detached,

first seen in Black Cañon. The Cactus Wrens like to build their large nests in them; but we saw many of their nests in mesquites. Squirrels were abundant.

It is hardly worth while to give a list of the plants as they are nearly all found at Verde. The first cactus, a handsome red Cereus, was in flower. Euphorbia, daisies and other composites, pink and yellow primroses and cypress were abundant.

Of Mammals, a few Rock Squirrels (Spermophilus grammurus), Spermophilus were seen, and Harris's Chipmunk was abundant, as were both species of Tares. The Prairie Wolf and a small species of Bat were the only other species seen.

Birds. - The Yellow-headed Let was everywhere common, as were their nests. Its note is a sharp metallic call.

The Rock Wren and Cactus Wren were both common & killed two of the latter on a Stelgidopteryx serripennis. Rough-winged Swallows were plentiful. They like to settle on dry limbs.

The House Finch delights to sit upon the summit of the giant cactus and sing. Some of their nests were built in the axils of the limbs. Calamospiza melanocorys was found in large flocks. The Western Grass Finch and Black-throated Sparrow were singing in. One Kingfester was seen on New River. Nighthill. Poor Will was heard calling during the night at Bumble Bee. Bullock's Orioles were first seen to-day, one male on the Agua Fria and an other male on New River.

March 28th.

Last night the Doctor and I slept without our blankets. The wagon was upset and broken, and the things were not brought in until near morning. The Col. ordered a rest in camp to-day, so we expected to find time to skin our birds up and repack our baggage. We found some loose straw in which we covered ourselves, our ^{hot} blankets having been appropriated by soldiers as the night was cold. We both slept well all night. After changing his mind several times and giving contradictory orders, the Colonel ordered the "General" sounded at 7:30 a.m. The men were baking bread, which they had to throw away. We left Hall's Ranch at 8 o'clock and marched 30 miles to the Grand Canal near Phoenix, where we arrived after dark, and found that Mrs. Russell had rustled some nice fresh vegetables and lettuce salad with lobster for our dinner. The day was intensely hot. Most of the specimens shot were spoiled when we got in to camp. The first few miles of the way was over

some malp hair ridges, when we reached a level, desert plain across which our march lay. A few barren mountains were passed, rising abruptly from the plain. They appeared to be volcanic, being covered with malapai rock. The plain was covered with greasewood and cacti. The Grant cactus and other species of *Cereus*, *Echinocereus* and arborescent *Opuntias* as well as the ~~round~~^{oval}, flat-jointed species of the same genus. We soon captured specimens of a new Thrasher (Palmer's), of which we saw the first specimens yesterday in Black Canyon. While crossing a wide zone of *Larrea tridentata* we discovered a new Squirrel (*Spermophilus tereticaudus*), and shot five specimens. At Desert Well, about the middle of the march, we found Harris's Chipmunk associated with the new Spermophile; but the locality was at the base of a mountain piled with malapai rock in which the Chipmunks found a congenial home, quite different from the plain in which the Spermophiles were so abundant. The first specimens of the Black-capped Chatcatcher were also found here.

The desert was bounded by mountains. The only abundant plant was the greasewood (*Larrea tridentata*) now in flower it exudes a gummy oleoresin, whence its name. The flowers are yellow; stellate. A few cacti of the genus *Cereus* were in flower - bright red.

Mammals:-

Spermophilus tereticaudus Baird. Fort Yuma Spermophile. This singular mammal lives in holes under the greasewoods, which it undermines, excavating chambers and tunnelling beneath the roots. Large, low mounds are formed around the bases of the greasewoods, having many holes for entrance and egress. The season for their

selection in excavating their burrows seems to be that the meshes formed by the fine roots of the greasewood serves to support the dome of their habitation; the soil being everywhere light and loose, would, otherwise, be continually caving in upon their chambers and galleries.

In size and proportions, this animal approaches the chipmunks (*Tamias*), being of just about the size of *Tamias harrisi*, with which it was found to day; but it is quite different in appearance and actions, when alive, from Harris's Chipmunk. Its resemblance to a weasel, at times, is very striking. When surprised away from its burrow it tries to skulk unobserved to its hole, and walks low, with its head elevated and poised serpent-like at a right angle to the plane of the neck. Those shot had been eating the seeds of a hispid weed, bearing yellow flowers. Their huge stomachs were distended with food that they had the appearance of being about to bear young. They utter a low, plaintive note when disappearing into their burrows. One kept popping its head in and out of the hole, uttering this plaintive cry at each disappearance. This species must be infinitely abundant in the region which it inhabits, for they live in enormous colonies. In many areas every greasewood bush had their burrows beneath it. In habits, it is shy. At a distance they were very often seen sitting up erect like "Prairie Dogs" (*Cynomys*) at the entrance to their burrows. As soon as they saw us, they usually dived into one of several holes usually found under the bush - always a greasewood, for that was the only shrub found growing over most of the desert - but, if surprised ^{away} at a distance from home, they would crouch to the ground and run behind the nearest bush, ^{alternately} making advances towards the burrow, then

and seeking concealment behind a tuft of grass or weeds.

Tamias harrisi. — The habitat of this species joins and overlaps that of the preceding species (Spermophilus tereticaudus) upon the edge of the desert, whence the foothills rise to the higher mountains. We shot both species together, and observed that their notes and habits differ quite as widely as their pelage.

Lepus sylvaticus arizonae. — Many half-grown young seen Lepus callotis texianus. — Our ride lasted all day and the early part of the evening. Towards dusk numbers of these Hares were seen in every direction. Mc Nally killed all he could carry on his saddle, for use in the Company. The men make a very good hare-stew in camp. Dozens of them were shot by the men for food. Many young were seen.

During the night Bats were flying in great numbers. Coyotes (Canis latrans) were howling in our camp. A large herd of Mule Deer (Oreamos macrotis) was seen in the foothills near Hall's ranch. One was shot by a soldier. Birds. — Harporthynchus palmeri. Palmer's Thrasher was abundant all along the way. They must breed very early, for I shot a fully-grown young of the year. They are able to alight with impunity upon the dangerous ~~joint~~ white cacti, whose joints are armed with long, slender, sharp spines; and many were seen perched upon the summit of these cacti, singing a sweet song, especially early in the morning and towards evening. I killed one of these Thrashers and a Cactus Wren at the same shot in a green-barked acacia (Cercidium floridum, Benth. in Gray's) I shot a female as she flew past, with a male in hot pursuit, and brought her, slightly wounded, to the ground, where the male sprang upon her and they had coition, after which both of them escaped,

running through the brushwood and cacti. Besides their loud song, they utter a loud, explosive note when rolicking together. I did not identify their nests, but some large ones, built in cactus plants, were probably theirs. In habits they somewhat closely resemble the Eastern Thrasher; but ~~as~~ they do not hide and skulk in brushwood as much as the Red-vented Thrasher (H. crissalis).

Polioptila melanura. — A few Black-capped Gnatcatchers, a species that I never saw alive before, were found in the greasewood bushes near the foothills at the edge of the desert, near Desert Well. They have a low call like the Catbirds (Mimus carolinensis).

Auriparus flaviceps. — A nest of the Yellow-headed Tit was found in a green-barked acacia near Hall's ranch. It was completed, but no eggs were laid. The parents guarded their home fearlessly, scolding incessantly.

Campylorhynchus brunneicapillus. — The Lazurus Wrens were exceedingly abundant. They were heard scolding continually, but seldom came in sight when near at hand. Their nests are seen in nearly every cactus. The few that I examined were empty. They utter a loud cry if pursued when wounded. The white spiny cactus (Opuntia Beccabonii I think it is) is its favorite plant, although their nests were seen in other species of cacti of the genera Opuntia and Cereus, and indeed anywhere in dense shrubs or trees.

Mockingbirds and Meadow Larks were abundant and singing, a few Rough-winged Swallows and Green-backed Goldfinches were seen at Hall's on New River. Shrikes were scarce, Grass Finches singing, a few Shore Larks, Sooty Peewees, Ravens, Lark Buntings (Calamospiza melanocorypha) were seen in large flocks, but one or two were in

nearly complete summer plumage, and they
are the first seen this season in that condition.

At Desert Station the first Ash-throated
Flycatcher was seen and shot. The Vermilion
Flycatcher (*Oxycephalus rubriacus mexicanus*) was
seen at Hall's Ranch, but not between there and
Phoenix, the country being unwatered and desert.

No Hummingbirds were seen after we left
New River, where *Calyptae costae* was very abundant.
A few Gila Woodpeckers were seen about Hall's and
on Giant Cacti near there. The Lizard Sapsucker (*Picus scalaris*) was seen occasionally along the route.

Red-shafted Flickers were seen for the last
time to-day; and *Colaptes chrysoides* was identified
positively for the first, although some of those
seen yesterday during the last day or two may
have been Walther's Flickers.

A few Sparrow Marsh, and Red-tail Hawks
were seen. Mourning Doves and Gambel's Quail
were infinitely abundant. I practiced wing shooting
on horseback, while riding slowly along, and
killed both Doves and Quail.

Oxyechus vociferus. - Killers have been
found everywhere on our line of march, sometimes,
as to-day, in the most desert places. On the Grand
Canal, their notes were sharply reiterated ~~the~~ outside
my tent during the greater part of the night, while
I sat skinning Squirrels and Birds.

Water is only found at two places on our
march, a distance of 30 miles. At a place called
Desert Well, near the foot of a low mountain
are a few shallow, muddy, alkaline water-tanks,
a crumbling building close by. Here we found birds
and Rabbits in great numbers. At Desert Station
is a deep well, but the water is alkaline. There
is a dry bed of a stream there, bordered by shrubbery.

March 29th.

Broke camp at the Grand Canal at 6 o'clock
a.m., and marched across the Gila, 20 miles,
camping on the south bank of the River. From
our camp on the Canal we rode all the way to
the main street of Phoenix through a wide avenue
of shaded on both sides by handsome cottonwoods.

The alfalfa was a foot high in the fields, and
of a beautiful dark green color, thoroughly to be
appreciated after riding over a parched desert.
The town is watered by irrigation, every field
surrounded by an aqueduct. The water is taken from
Salt River several miles above the town. The houses
and places in Phoenix are cosy, and there is verdure
and inflorescence everywhere. Roses, oranges and
the cabbage palm were in bloom; the houses sur-
rounded by orchards of apple, peach, fig, oranges,
apricots, cherries and plums, with plenty of
small fruits and vegetables. The population is
composed of Americans, Mexicans, Chinese and Indians.

Most of the storekeepers were Jews. All the streets
are shaded by cottonwoods; and several species
of Doves were cooing in the midst of town. Thousands
of Red-winged Blackbirds were in full spring
chorus in the cottonwood hedges and alfalfa
fields along the ditches. Their notes were exceedingly
cheerful and pleasant. I shot my first specimen
of the Scaly Dove (*Scardella nicae*) from a cotton-
wood bough beside the road, and several others
were seen. After crossing Salt River, near some Mexican
dwellings some more of the diminutive, long-tailed
Doves were found and a second specimen secured.
I thought I heard buckoos (*Geococcyx americanus*)
calling, but was not positive that they were not
some new species of Dove with which I was unacquainted.
Many small birds were flitting about in the dense

hedges of cottonwood. Salt River was booming, and we had some fun crossing it. My horse, "Daisy," was the first to cross both forks. The ^{River} separates a little way below the ferry, into four diverging forks, two large and two small ones; the ford crosses all of them. The river is well wooded with cottonwood and bordered by ranches on the south side. A few ducks and other interesting birds were seen; but I was wet from crossing the stream, my pony having been in swimming water. My saddle pockets were filled with water, and I was obliged ~~to~~ to stop and dry their saturated content, as well as my clothing. Meanwhile Mc Nally and I took a good swim in Salt River, but found the current too powerful to swim against. The water was cold and pleasant. The troops crossed safely, a few at a time, although a few of them were carried a considerable distance down the stream. Some Indians crossed on their little ponies. Their dogs had a hard struggle to get across, but finally reached the shore. Their masters took a bath in the river before riding into Phoenix.

After leaving Salt River, we crossed a level desert where there were some Prairie Dog burrows, among which I shot a Burrowing Owl. As we neared the Gila River the road turned to the left and passed between a high mountain and a low range of foothills, through a scattered forest of Giant Cacti of large size and much branched. Many of the Woodpecker's holes in the cacti had Indian arrows sticking out of them, showing where Indian boys had fired at the birds. In one place a young joint of the cactus about the size of an orange and thirty to forty feet from the ground was pierced by two arrows crossed, which indicated fancy shooting for practice.

At the Indian trading station of "Gila" we found large numbers of Indians and one or two adobe buildings and some corral owned by the Trader. The Gila was very swift, and we were obliged to wait a long time while the ferry was being repaired. Some six mule teams on the south bank, loaded with goods for Phoenix had been encamped for several days, while waiting for the ferry. I got over and lay down upon the clay bank to watch the wagons and horsemen cross, but soon fell asleep and only awoke when it was sun-down. They were still ferrying our wagons across. A large group of Indians were grouped on the further shore and looked very picturesque. One of the Squaws was dressed in green, some in blue and the rest in red. After my tent was pitched for the night, and I had retired an Indian stuck his dusky head between the flaps and grunted until I awoke when he wanted me to buy some green grass which he had gathered along the riverbank, which I was very glad to do, as there was no grazing on the way and not a spear of grass in our camp. No hay was issued here. After this I was awakened several times by Indians anxious to sell me some grass; but at last I made them understand that I owned but one horse, and had all I wanted.

At sunset, Dr. Glendenin awakened me. He had some lemons and wanted to make some lemonade in our tin cup. While we drank our sour lemonade, the Doctor called my attention to a beautiful White Egret (Gardeetta candidissima) flying up the River. It alighted on a cottonwood across the stream and sat there until dark. A few ducks were also seen flying past. The banks of the Gila are of a reddish clay, and bordered with Cottonwoods, a few willows, and a broad belt of arrowwood (Lisaria) and other dense underbrush and weeds.

A number of Prairie Dog (Cynomys columbianus) burrows were seen between Salt River and the Gila.

The Cotton-tail (Lepus sylvaticus arizonae) was seen in Phoenix, and the Northern Jacks-Hare (Lepus callotis texianus) was seen on the desert between Salt River and the Gila.

A few mountain Mockingbirds (Oreoscoptes montanus) were seen and heard while crossing the desert. A single Palmer's Thrasher (Turdoides curvirostris palmeri) was seen in the desert south of Phoenix. Yellow-headed Jays were very abundant along Salt River and the Gila. Yellow-breasted Chats (Icteria virens longicauda) were very abundant of Salt and Gila Rivers; and Dendroica auduboni was also common; as were Lazuli Wrens (Campylorhynchus brunneicapillus). The following list embraces the other species seen to-day:

Stelgidopteryx serripennis. Rough-winged Swallow. Abundant.

Vireo pusillus. Little Vireo. Singing everywhere in brush-wood, especially in the town of Phoenix.

Lanius ludovicianus excubitorides. White-rumped Shrike.

A few were seen.

Carpodacus frontalis. House Finch. Singing about Phoenix in numbers. One of the most conspicuous birds.

Astragalinus psaltria. - Green-backed Goldfinch.

Spizella breweri. Brewer's Sparrow. Common at Phoenix.

Amphispiza bilineata. Black-throated Sparrow. A few were singing near the Gila and Salt Rivers.

Pooecetes gramineus concolor. Western Grass Finch. Singing: common at Phoenix.

Psilo aberti. Abert's Towhee. Very common in suitable places at Phoenix; frequented the rows of cottonwood trees along the ditches.

Melospiza fusca pallax. Mountain Song Sparrow. Common on Salt River and on the Gila.

Calamospiza melanocorys - In flocks.

Agelaius phoeniceus. - Red-and-buff-shouldered Blackbird. - Some of the thousands seen at

Phoenix, Salt River and the Gila may possibly have been variety gubernator, although one specimen shot on the Gila had a restricted buffy border to the side of shoulder. Still it belongs clearly to variety phoeniceus.

(Phoenix)

Scelophaeus cyanacephalus. Brewer's Blackbird at.

Molothrus ater obscurus. Abundant on the Gila River.

Corvus corax carinatus. American Raven. Scarce.

Sayornis sayi. Say's Flycatcher. Abundant.

Tyrannus vociferans. Cassin's Kingbird. First seen about Phoenix.

Mniarchus cinereiceps. Ash-throated Flycatcher.

Archilochus alexandri. Black-chinned Hummingbird.

Only one, on the Gila River.

Ceryle alcyon. Belted Kingfisher. On the Gila.

Picus scalaris. Texan Sapsucker. At Phoenix.

Colaptes chrysoides. Malherbe's Flicker. Abundant.

Its notes resemble the Common Yellow-shafted species.

Centurus uropygialis. Gila Woodpecker. In giant cacti.

Buteo borealis calurus. Western Red-tail

Zenaidurus sparverius. Sparrow Hawk. A few.

Accipiter cyaneus hudsonius. Marsh Hawk

Leiopterus aura. Turkey Buzzard.

Scardafilla nicae. Scaled Dove. First seen in the avenue of cottonwoods leading to Phoenix, where I shot a female. Several were seen in the town of Phoenix; and I procured an other specimen on the south side of Salt River.

Colinus gambeli. Gambel's Quail.

Zenaidura carolinensis. Morning Dove.

Oreocichla ocularis. Killdeer. About Phoenix, Salt River, and the Gila.

Nettion carolinensis. Green-winged Teal. Live on the Gila.

Mergus serrator. Red-breasted Merganser. One on Salt River.

Egretta candidissima. Little White Egret. One alighted upon a small cottonwood beside the Gila, and remained there several hours, until dark.

March 30th. Temperature 104° F.

Left Gila Indian Agency on the Gila River at 6 o'clock and march 16 miles to Maricopa, on the Southern Pacific Railroad.

The entire distance traversed was through a desert bordered by distant foothills, along the edge of which are forests of Giant Cacti, some of which were found along the road. A sliver of the Gila was crossed a few miles from the River, along which were some cottonwoods and a quantity of lutes and cat-tails; also plenty of green grass, in which Meadow Larks and Thrashers ^{Cinclus gutturalis} were singing. The rest of the country ~~was~~ ^{was} bare of grass, sandy, and covered with scattered sagebrush and cacti (Opuntia,

Echinocactus, Cereus, and Echinocereus), with occasional areas of bare white sand, where the sun's reflection was terrible. The day was intensely hot. The little Spermophiles (S. deserticandus) were very abundant, and more of them were shot. An Indian seemed to take great pleasure in seeing me shoot at them off of my horse. He would ride ahead and point to them.

Another interesting discovery was Le Conte's Thrasher (Harporhynchus redivivus lecontei), of which we saw but one pair of birds, both of which I shot. They ran and hid with as much agility and cunning as the Roadrunner. Some large white lizards scuttled into their burrows at the side of a sandy arroyo, and resembled the Thrashers, than which they were scarcely swifter, both running before me with great speed and disappearing from view. They seldom arose from the ground, and then only skinned over the brushwood a little way and then ran swiftly in zigzags among the bushes and cacti. They were seemed with great trouble and exertion, for which they were doubtless the more highly prized. The female's

ovary showed that four eggs would constitute the complement, and they would soon have been deposited.

We were glad to reach Maricopa, being very much heated and fatigued. Just as we entered the town I saw the Cow's Longspur (Rhynchophorus macconnelli) feeding upon a bridge over a dry ditch, and secured the specimen. Horns of the mountain Sheep or Bighorn (Ovis montana) were nailed above the doors of a corral. We afterward learned at Tucson that Mountain Sheep occur in the Santa Rita or Santa Catalina Mountains, and that several were killed by hunters there during the past winter and sold in the market of Tucson. Large flocks of Yellow-headed, Brewer's and Cow Blackbirds ~~had~~ infested the town and especially the corrals. Maricopa was vitrinely hot. At the hotel we found good food, accommodations and baths, but slept in our tent, after skinning our birds and Spermophiles — such of them as were not spoiled by the great heat. Thermometer 104° F.

The water at Maricopa is supplied by wells which are several hundred feet deep, we were informed.

March 31st

In camp at Maricopa. Dr. Glendenin and I went out hunting early in the morning, and were gone from 7:30 a.m. until 10:30 a.m. when the roasting heat drove us back to our tent. The Black-throated Sparrow, Brewer's Sparrow and Mocking bird were the only species at first met with. Brewer Sparrows were in small flocks in the sagebrush and scattered mesquites, and twittered in chorus somewhat as the Tree Sparrow (Spizella montana) does. Its love song is a fine, sweet-like performance which somewhat resembles the song of the Warblers of the Helmithophaga genus.

4 miles in hand singing on some mesquites beside an arroya a long way off, and I started in pursuit, but they evaded far away from me flying long before I could get within range, and finally turned and met the Doctor, who had found a nest of some unknown bird and brought me the eggs. They have not been identified. They are a little larger and more elongated, but otherwise resemble the eggs of the Long-tailed Chat, a bird which never resides on the barren desert region, however, and the nest was totally different from the Chat's, being globular with an entrance at the side like the Cactus Wren's. It was built in a large arborescent cactus (Opuntia). We at once set about to find more nests in the cacti, ~~large~~ found another nest and suite of eggs exactly like that described above. We also found several nests and eggs of the Cactus Wren (Campylorhynchus brunneicapillus). The Sing Thrashers proved to be Laniarius, and we found them so very wild that we failed to secure a single specimen. Their song was bold and fine, compare favorably with the best efforts of the Eastern Brown Thrasher. They sat upon a lone ~~spare~~ widely scattered mesquites, and flew to a distance whenever approached, dropping down low and informing a part of each flight under cover of the sagebrush according to the ~~to~~ of the mesquite like a Shrike. Their flight was very difficult to follow, and of them managed to hide the Doctor and myself.

Nests and eggs. — We found a nest of the Cactus Wren containing five eggs hard sat upon. Another nest contained young several days old. Two other nests (described above) with side entrances were found but the eggs, four in number in each case, were totally different. They were nearly incubated, and only one that was addled could be preserved in the usual way,

but the others were dried and afterwards described minutely and their dimensions taken, at though there is no clue to their identity as no birds were seen near the nests. Another open nest was found containing two eggs of Harpothrychus caeruleus bendirei, Bendire's Thrasher, perfectly fresh. The eggs of the Cactus Wren's were a beautiful salmon color spotted with slate color and dull red; and the nests were densely lined with feathers of several species of birds as well as their own.

The most interesting Mammal observed was the Mexican Flau (Lepus callotis texianus), a species which I had never before met with. The Northern Jackass Flau (Lepus callotis texianus) was also seen. The broad Manzanita desert is nearly level, very barren of vegetation, and hence characterized by a great paucity of animal life. There are wide patches of bare white sand, with other areas of scattered sagebrush, with a few mesquites not yet in leaf. Along the dry arroyos are rows of mesquites of larger size together with a shrubby plant bearing berries and ~~thin~~ ^{thick} leathery leaves.

There are occasional patches of hardstone arroyos each ten or twelve feet in height in which large ^{dark-colored} lizards were basking, but watchful and ready to scuttle off down the trunk into the ground at the slightest alarm. The large whitish lizards were fairly numerous, and many small ones were seen.

Towards the borders of the mountains, the Giant Cactus (Cactus giganteus) holds sway, and a few scattered ones are found all over the desert. The "bee-hive" cactus (Echinocactus hispinus?) was occasionally seen; and bears large yellow flowers in a circular cluster on the summit of the plant. They are as large as a small lemon, free from spines, ^{pleasantly} acid in taste, and filled with large black seeds.

April 1st. Maximum temperature 104° F.

We started from Maricopa early in the morning and marched 26 miles to Casa Grande. The country was a level desert with alternating belts of sagebrush and greasewood, with mesquites mixed in places forming groves. A Rattlesnake was killed the first seen on the trip. Leconte's Thrasher was met with almost as far as the Station of Sweet Water, where it was left behind. One nest was afterwards found at Red Rock Station, the most eastern locality where we have found it. Although a number of these pale Thrashers were seen, they were so excessively shy that only one specimen could be secured. Their swiftness on foot and ^{terrestrial} habitat were again noted, and several were heard singing delightfully. Beldie's Thrasher (Heterophasianus cinereus bendirei) was first seen to-day, although its eggs were taken at Maricopa yesterday. Palmer's Thrasher was also common and both of their nests and eggs were found. Many nests of the Cactus Wren (Campylorhynchus) were seen in the cacti, of which we found several arborescent species. Captain Russell rode in his buggy, and took the wrong trail, which led him to the mines and Indian village of the Maricopas, making his trip over 40 miles. The new Jack Rabbit (Lepus alleni meurus) was again seen. At the water tank 6 miles from Maricopa the engineer had some Quail traps in which he told us he captured all of them that he needed in his yard. They come thick - great numbers and doo Rabbits, for water.

To the right of the Railroad is an underground stream, its presence shown by the large mesquite and shrubbery growing in a belt above it.

The two ~~species~~ varieties (callotis and texianus) of Lemia callotis were about equally numerous. We failed to secure any specimens. The day was the hottest we have yet experienced.

April 2nd. Maximum temperature in shade 102°.

At Casa Grande, we found good stores, and laid in a supply of lemon and orange to last us on the road to Tucson. I had to visit a doctor in the town and attend a soldier who got drunk and fell off his horse before we started. It was eight o'clock before we got away from town, and we marched 19 miles to Pica Echo Station, arriving early in the afternoon.

The country the same as yesterday, greasewood, sagebrush, and a bush with pulpy leaves, and red berries, eaten by Quails and Thrashers. Northern Flicker was seen in most of the Giant Cacti. The new Lepus was very abundant, as many as four or five being seen at once. They gallop off together and are rather shy and hard to approach, running sometimes clear out of sight across the level desert. Their white rumps make them very conspicuous. When running the hinder parts are depressed, and they jump up Kangaroo-like, while the Northern Jack Kicks up behind when running. The two species here live side by side, and maintain their sub-specific characters. The fact that the Mexican Hare is much larger — and this fact is contrary to the generally received opinion of authors — than the Northern form leads me to believe that the two so-called varieties of Lepus callotis are two distinct and separate species, living together in the region traversed by us and maintaining their characteristics distinctly under precisely the same conditions of environment. These Hares come into the corral to drink during the hottest and driest weather, in droves of twenty (20) at a time.

A Mexican brought all the milk and cheese we could use into our camp, and we skinned the camion, and the Doctor hunted until dark. Pediota micromma was abundant and two specimens were taken.

April 3rd

max. temp. in shade 102°.
We marched 14 miles to Red Rock Station. The country was about the same, except that vegetation was more luxuriant. Arborescent forms of cactus and a large number of Giant Cacti were found, many of which we examined in search of Woodpeckers and other birds. In a branching joint of a large cactus we found a nest of the Northern Flicker (Colaptes chrysoides). Four heavy charges of shot at the base of the branch brought it to the ground. The nest was only the bare cavity, lined with the dry and indurated tissue of the cactus forming a hard ~~wall~~ around the cavity resembling the shell of a gourd. In this burrow were three ^{naked} nestlings. They are evidently early breeders. Their eggs, as well as those of the Gila Woodpecker and several species of Owls might easily be obtained by the aid of a ladder; but we had no means of reaching the nests in the holes in these enormous Cacti, which afford a home and shelter to several species of small mammals. Cactus Wrens breed in the axils of the branches, and Hawks, Doves and the House Finch also make this singular plant their home and defense. None of these Cacti are yet in bloom. We passed by the foot of a high, castellated butte (Pecacho Peak) ^{to the right}, which for several days has been a prominent landmark. Along its base is a forest of Giant Cacti and Green-barked acacias. Both species of Jackass Peccaries were seen, but the Mexican (variety?) is much more abundant, and has been for several days past. Several of them were frequently seen running together, but they were more commonly seen in pairs. The eggs of three species of Thrashers, (Palmeri, C. leucurus and Pseudoleucus), Cactus Wrens and Divas of Cowbirds were taken. The well at Red Rock Station is 260 feet deep, the water pumped up by an engine. A Curlew was seen and shot at several times.

April 4th

Marched to the Aequia a few miles from Tucson, 28 miles. The country was much the same. We stopped at a large Mexican ranche and got good water for our horses and ourselves, the latter from a large tank. Dr. Schuderman discovered a Prairie Fox (Vulpes macrotis myriam) ~~Vulpes~~ living in the sand apparently a den; only a couple of rods ahead of us, and stepped off his horse for the purpose of shooting it, but fumbled so long attempting to extract a tight cartridge from his belt, that the fox finally got me and trotted slowly to his den, a burrow in the earth, and finally disappeared just as the Doctor was going to fire.

Before we came to the Mexican cattle ranche mentioned above, we passed, near Rillito Station, a ranche partly surrounded by Giant Cacti artificially planted to form a fence; but a number of the large "barrel" Cacti (Echinocactus wislizeni) had evidently been blazed by mistake, and left fragmentary ^{gruff} in this prairie fence. The owner of the ranche was a ^{foreign} Englishman who refused us a drink from his well. This is the first ranche we have seen along the ^{upper} Southern Pacific Railroad. It was a sheep ranche, but ^{the} had some horses and cows besides.

After leaving the Mexican ranche we soon got into a growth of large mesquite, nearly equal in size to those at Fort Mojave, on the Colorado River, and found dozens of Black-capped Gnatcatchers, Black-crested Flycatchers, Vermilion Flycatchers and other birds, and passed a number of ranches and Mexican dwellings, where we purchased "tache" (milk). Roadrunners were numerous about the houses. We crossed an Aequia where the Mexicans owned enormous herds of swine. Along the stream were handsome mesquites in which were numbers of Hooded Crows (Corvus cornix) and Vermilion Flycatchers,

I shot several wanted specimens, of each, but found no time to prepare their skins. Birds were here more abundant than elsewhere met with on the trip; but the march was very long (28 miles) and the weather not so we did not investigate much, but killed all the Gambel's Quails we could see without getting off our horses. When we reached the dry bed of the Santa Cruz River we found a wide belt of white sand, bordered by large cottonwoods in which Gila Woodpeckers were cackling and quarrelling and soon reached the large Aequia upon which the Command had encamped. A Cacatua Eagle was seen near our camp, but could not be approached near enough for a shot.

Some Mexicans brought milk, cheese and green grass for our horses, and one of the boys pointed to some birds lying upon my pannier and exclaimed "Solderita!" (little soldier) and singled out the Vermilion Fly catcher (*Pyrocephalus rubineus mexicanus*) again exclaiming "Solderita!, Solderita!" his eyes flashing with pleasure and admiration. I was very pleased to learn this name of the Mexican, so very appropriate for this gorgeous little bird.

The last five miles of to-day's march was through a country very rich in animal life, ^{which} would richly repay a long and thorough examination.

April 5th

Marched from the aequia near Tucson to Fort Lowell, A. T., eleven (11) miles. The Doctor and I left camp early, and crossed the aequia and rode through the Mexican ranches, and the mesquite groves and cottonwoods to Tucson. We saw the Red-vented Thrasher again here, and the Zone-tailed and Mexican Goshawks, the latter (*Osturnia nitida plagiata*) for the first time. The Lucy's Warbler (*Hemitrochophaea luciae*) and Yellow-headed Laniace

were exceedingly abundant, the former singing everywhere. Audubon's Warbler and the Black Crested Flycatcher were very abundant in the orchard-like groves of tall mesquites. The houses were built of mesquite posts which are very durable, and many mesquite trees are growing in the grain-fields of the Mexicans. They seemed to have a great many children, and were good of them. One long-bearded old man was holding a little child on his lap and kissing it tenderly. Their houses are surrounded by cottonwood-trees in which many species of birds were singing. The old Mexican town of Tucson is quaint and curious. There are many handsome residences and one or two pretty good hotels, and some fine public buildings. The houses are adobes often having a porch around the second story and an open corridor through the center. They are square or rectangular with (mostly) flat roofs. We called upon Father Antoine, and found him very polite and courteous when we explained that our object was to obtain a permit to visit the old Church of San Xavier, and wrote the permit in Latin. The Doctor did the writing, and the good priest was not informed what my name was, so he wrote "admit Mr. Brainer and his friend". Unfortunately we were unable to avail ourselves of this permit, as our horses were too much fatigued by the long marching and heat, with proper food nor sufficient water. The ride from Tucson to Fort Lowell (6 miles) was pleasant over an excellent trail road, slightly rising to the base of the mountains near which runs the Santa Rita River, a small stream with well wooded banks in the rear of the Post of Fort Lowell. The "Cholla" cacti were abundant and as usual occupied by nests of Bendire's and Palmer's Thrashers and Cactus Wrens. Dozens of Mexican Hares (*Lepus alleni meatus*) were seen, but none of the Northern variety. The principal vegeta-

(Larrea mexicana)

aside from cacti, is greasewood until some low hills are reached, where mesquites flourish and increase to the size of small trees about the Post. Dr. Hopkins, the Post Surgeon met me at Goodwin's Post and asked me to stay at his house, and when I declined to appear in field costume, urged me to do so and spend the evening, which latter I consented to do. Near our tent a Lucy's Warbler was carrying materials into a hollow trunk of mesquite for its nest, and ~~some~~^{other} species of Cardinals was seen near our camp (*Cardinalis virginianus agrius*). I was surprised to find that Dr. Hopkins had learned from me how to make excellent bird skins and had collected a number of specimens of the most beautiful birds found near Lowell. He went out with me for a short hunt and we soon secured a large Hawk and the first Gadwall Duck that I ever saw alive from a large flock. We spent the evening in looking over specimens, and in gossip. Weather very hot.

Lowell is a beautiful post well watered from the Rillito and shaded by avenues of handsome cottonwoods, surrounded by large mesquites. The River is a narrow stream flowing in the center of a wide bed of sand, beautifully wooded on both sides. Behind the Post rise the Santa Catalina Mountains, which are rugged and broken by deep canyons and wooded with pines on the summit. This region has never been carefully explored. The foothills are covered with stately "sahuaras" or Giant Cacti, in which Dr. Hopkins has found the smallest American Owl (*Micrathene whitneyi*). The quarters at Lowell are excellent. They are built of adobes, with wide halls and piazzas, the latter shaded by a beautiful bowering of the ocotilla (*H. splendens*) whose leaves are as green as when growing in a natural state, although the pods are merely thrust into the ground and raised above. We had a refreshing bath in the Rillito

April 6th.

In camp at Fort Lowell. In the morning, Dr. Goodwin, Dr. Hopkins and myself went shooting. We followed the Rillito a mile or two and found birds in great numbers. Among them were Piloted and Audubon's Warblers, several species of Flycatchers, beautiful Violet-green Swallows, ^{Tachycineta lepidota means} Vermilion Flycatchers were abundant. We found one nest containing young that were scarcely able to fly. *P. Mniotella nitens* was exceedingly abundant, as were Hooded Orioles, Lazuli Towhees, and Lincoln's Finches. Gila Woodpeckers and Mather's Flickers were abundant, but the latter so shy that none were shot. Four species of Blackbirds and the Meadow Lark (*Sturnella neglecta*) were abundant. Dr. Hopkins shot a handsome Swainson's Hawk, but we did not carry it home. Lucy's Warbler was one of the most abundant birds, and singing everywhere. The Yuma Spermophile (*Spermophilus tenuicaudus*) is exceedingly abundant in and around Fort Lowell, and association with man had made them far less shy than those living in the desert away from human habitations.

The groves along the Rillito are pleasanter and prettier than anything we have before seen on the trip, although parts of Ash Creek, the Agua Fria and New River valleys are very attractive. The shade and sound of singing birds, the white, wet sand and cool flowing water and the interesting plants made a very agreeable change from the shadeless, torrid desert with its cacti, greasewood, and sagebrush and mesquites; but we hastened back to the Post at noon and after taking lunch with Doctor Hopkins went to Tucson together in the Post ambulance, behind a good team of mules. We made some purchases of fruits and supplies for the march and drove through the entire place. A Steuder-billed Nuthatch was shot in a willow tree beside the Rillito.

74 Mizarchus mexicanus cooperii. - Heard but not identified until afterwards found at Ft. Verde. See page 113.

Towards Evening I took a bath in the Rillito and was surrounded by thousands of Swallows. A Texan Cardinal (Pyrocephalia sinuata) was seen, but having no gun with me it was not captured, although I returned to the spot that evening and again the next morning and searched for it.

April 7th.

Marched 18 miles to Mountain Spring. When several miles from the Post I discovered that I had left my game bag containing my note-book with all my previously-written notes and measurements of specimens. Mc Nally said that our camp had doubtless been policed before then, and that in all probability my note-book would be found and turned over to the Provost Sergeant to Dr. Hopkins, as it was labeled "U. S. Army Medical Department" on the cover.

I took nests of Palmer's Thrasher, Black-capped Gnatcatcher, Black Crested Flycatcher, Least Wren and Gambel's Quail, and made skins of the Sealed Quail, Gambel's Quail, Scott's Oriole, Black-capped Gnatcatcher and Malherbe's Flicker, and shot several other species which were thrown away for lack of time to prepare them.

The first ten miles was across a level sandy country, thickly grown up to cacti in many places and abundantly in good sized mesquites, "Sophora" (Lemmon gigantea), and creosote bush mesquino. Gila Woodpeckers were playing at bid and seek in the giant cacti, and the familiar - because resembling the eastern - cries of Malherbe's Flicker resounded from cactus or mesquite all along the way. We shot down a giant cactus containing a Flicker's nest. This required a number of charges of buckshot, and resulted in destroying the single egg which was found crushed in the bare cavity. The burrow was dug out of the pulpy tissue of the cactus to one side of the woody cylinders used to form a central support to the ponderous trunk

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and lined with the hardened indurated cicatrix. The burrow was pear-shaped, the expanded extremity below. The crushed shell seemed to indicate that the egg was similar but less in size, than the Eastern Flickers, and, like it, was, of course, here white. Cape Cardinal-Goosbacks were found, but no specimens were secured as they were shy, inhabiting bushy thickets where, when seen, they were too near us to be shot, and we had little time to spend in hunting for them. While doing so, however, we found a nest containing young of the Black-capped Gnatcatcher. Gambel's Quail was exceedingly plentiful, and a female was found from her even legs and well secured with the complement. Both species of Jacks (Lepus texianus and L. alleni) (Spermophilus tereticaudus Bair) were seen and shot, and the same squirrel was common.

The last bird of the day was one of the Scissirostrum, now a nest and the first Scissirostrum Quail (Lemmon's Scissirostrum). The nest was laid in a small cactus about six inches high. The birds were not seen in the bushes and were heard. They were in the ground between the low bushes. They sat in the ground when the gun went off and did not fly away, but lay so closely that no light was cast on them. The bushes in the bush were broken over at their bases, and flushed it several times, but failed to hit it. It kept very quiet throughout the whole nest period, growing in in its form. I secured it; but those we subsequently found were with great difficulty found even with a great gun, and shot at very closely, and were lost of distinction. I found a nest at the same shot upon running at the side of the road, or in small cactus just beyond the road.

could not be found. Upon those foothills were splendid specimens of the Spanish bayonet, and Yucca, Giant Cactus, and the clusters of spiny wands-like branches of a spiny plant with small oval or spatulate leaves and terminal clusters of fuchsia-like coral-red flowers.

We saw in the corral and the wagon box a large (Hougueira splendens). The buckler cactus (*Echinocactus rigidissimus*) was large, than any before seen. Then we reached camp and found a beautiful stream - Mountain Spring, and numerous cottonwood trees bordering it. It was in a rocky area, so we had to walk over rocks, and in many, it was necessary to wade.

11 MI. S.E.

Marched from Mountain Spring to Tres Alamos, on the San Pedro River, miles. Yesterday we left the level desert plain on which we have been traveling since we left Heale's Ranch on New River, on the 28th of March, and began to gradually ascend through a rolling country. We at first passed through a rocky gorge, where I suspected the presence of the Massena Quail (*Cyrtonyx montezumae*), but on superficial examination of the rocky hills failed to find them; and, indeed, none were seen on the trip. Lewis's Woodpecker (*Asyndesmus torquatus*) was found along a stream that we soon reached, called

, where there were cottonwood trees and many birds, Hooded Orioles and Vermilion Flycatchers. The latter flew high up in the air and fluttered in one spot with their wings vibrating rapidly, then descending, singing or twittering to the top of some bush or tree. The notes of this bird are fairly entitled to be called a song. The country was rolling and rocky, covered with soapweed, Spanish daggers, mescal and stunted mesquites, although in the neighborhood of streams

the tree mesquite was seen, but otherwise the sagebrush (*Larrea* or *Covillea tridentata*) and tree mesquite were left behind, as were the giant cacti after the first few miles of today's march, and prickly pear replaced (rarely) the crooked forms of cactus. The Giant Cactus when built its nest in deciduous trees and yucca plants instead of in tree cacti and saluaras, and became scarce.

At Tres Alamos, the San Pedro is a mere ditch, spanned by a single length of timber and plankings. The ranch there is the best built and furnished that I have seen in Arizona, and its owners are wealthy people, I was informed, were afterwards killed by Indians having made a fortune in the cattle business. These Lucy's Warblers were singing in a lively manner in the cottonwood hedges.

Near Tres Alamos (3 trees, ^{13 trees, not cottonwood} but among *Catil L. canescens*)^{20/19} is a suniga or marsh, swarming with Ducks and small waders; among them were Curlew, Greater Yellow-legs, Killdeer and Cinnamon Teal. Dr. Leidenius shot Greater Yellow-legs and a Cinnamon Teal, but they were lost for want of time to skin them. We did not have an opportunity of examining this interesting spot until nearly dark.

The only Mammals seen were: Bats, the first Badger, some Mule Deer, Gila Chipmunk and [Probably] *Spermophilus spilosoma*, Wood Rat, Northern Jack Rabbit and Southern Pocket Gopher (*T. maniculus*).

The Gila Woodpecker, Lewis's Woodpecker and Malherbe's Flicker were the last seen on our eastward march, and were only found again on returning to this region. The Vermilion Flycatcher was not again met with until we returned to Mountain Spring on May 4th.

Dipodomys spectabilis Merriman
The burrows of ^{mounds and} *Spermophilus tereticaudus* were built in open grassy places, and formed large piles of earth. None of the animals were shot, but several were seen running into their burrows, and I have no doubt as to their specific identity.

April 9th, 1885.

We had a long march to make, and so arose early and left camp before daylight, marching 41 miles to Frisk's Ranch, making the longest march on the trip. The road was good, and, in order to reach camp before dark we delayed very little to hunt for specimens. The country was, mostly, rolling foothills with occasional rocky ravines and level stretches of several miles extent, then for 25 miles rolling and everywhere covered with curled gramma grass, without shrubbery or trees, except where the sparse arroyos crossed the road.

A few "White-top" Quails (*Gallinago squamata*) were seen early in the morning. They were seen perched in pairs upon a tall mesquite or desert willow (*Chilopsis linearis*), and uttered a note like the Guinea hen's loud enough to be heard half a mile. They also utter the same note when in the grass. They were found in valleys near the hills. They flew long distances and ran up hill with even greater speed than Gambel's Quail with which they were associated. Both species could have been killed at the same shot. Their call, when running, is low and unique. They do not run ~~out~~ much better than Gambel's Quail, and their flight is ~~more~~ longer. The flock separating and flying in different directions. Towards the end of our march, when near the Point of Mountain a pair was found in the short gramma grass, far from any cover or water. At Fort Grant the Quail and two others (Gambel and Massena) are found.

The early part of the day was spent in rolling, rocky country, which the White-tops appear to like. Gambel's Quail was found with them, twice in the same flock, or at least in the same place at the same time.

The largest flock of White-tops seen, contained but seven. They frequent by preference hillsides and just such places as Gambel's

which they resemble in perching on trees and shrubs at morning and evening and calling loudly. Although when first discovered they usually try to escape by running with great swiftness and hiding behind bushes, tussocks of grass, Spanish bayonets or in arroyos, they usually hide and lie more closely than Gambel's Quail. When a flock divides and disperses in different directions it is very difficult to find the scattered birds without a dog.

During the first part of to-day's march Spanish bayonets, soaproot, mescal and yucca were numerous, but we left them behind and had only gramma grass and some beautiful annuals: Primroses, yellow, and white, yellow poppies with orange centres, yellow Composites with purplish-red centres and serrate-edged rays, and handsome legume of the genera *Acetosella* and others.

We passed the "Three Oaks" where two white settlers were killed by Indians two years ago, and saw their graves. There is only one oak left, besides a stump of one other of the three. I climbed the live evergreen oak and examined an old nest, probably a Raven's, as it contained feathers of that bird and was lined with rags, probably the old clothes of the dead white men. At Verde the Raven builds on ledges of rock in the cliffs; but this nest may have been that of the White-necked Raven (*Corvus cryptoleucus*), my first specimen of which I shot to day, on the wheel of the shambles at the Point of Mountain. Dr. Clendenin shot another on the wing in a "Prairie Dog" town near there.

At the ranch is a large village of Barking Squirrels (*Cynomys arizonensis Mearns*) and Burrowing Owls (*Speotyto hypogaea cunicularia*), in which we hunted for both animals with some success for a couple of hours, while the troops and wagons passed us. The men stopped and shot several Prairie Dogs with their carbines. For miles the burrows of these animals

were thickly scattered over the level plain of clayey soil, which is probably better suited to their habits than the light sand of most of Arizona. Here the "Dogs" fairly ^{ravaged} overran the country and their sharp barking was incessant, and their tameness surprising. We had no difficulty in getting near enough to hit them, but their burrows are so constructed that they roll out of reach ~~before~~ before they can be reached if not killed perfectly dead, and even when shot dead their lifeless bodies double up into a ball and roll down the steep incline of their burrows simply by gravity. Several of those that we killed could be heard kicking at the bottom of the bank in their hole, quite out of reach, but we managed to procure a number of them. We found that a shot delivered from exactly in front of the animal as it sat at the top of its mound with head and shoulders above the rim of earth which formed a breastwork, would almost always kill them dead. Dr. Clendenin shot two at once that were barking together in one hole. A good many occupied burrows had no mounds around them whatever. The owls were shy and would fly ahead of us until, when tired of leading us on, they would enter a burrow. They commonly sat in the mouth of a burrow just below the level of the surface of the ground and when surprised would fly out or drop down out of sight. Others would sit with their heads exposed, slowly shrinking out of sight as you approach. They usually flew several hundred yards at a flight. On the whole, they were shy.

Sixteen dogs were taken in all, and twelve of them were measured and skinned; but several ^{skins} were subsequently destroyed, along with all the skulls but one, made to my sorrow, as we did not pass the

place on the return trip. After leaving the "Prairie-Dog" town ^{at the point of the Calumet Mountains,} we crossed 6 miles of level plain where there was good grass; but nothing but hundreds of Northern Jackass Hares (Lepus callotis texianus) could be seen. We reached camp just in time to arrange our tent and belongings and eat our dinner before dark; and were glad to hear that we were ~~going~~ to remain in camp here to-morrow, affording an opportunity to prepare our specimens. Our bags were as follows:

Dr. Clendenin.

- 1 "White-top" Quail (Gallinula squamata).
 - 1 Gambel's Quail (Lophortyx gambeli).
 - 11 "Prairie Dogs." (Cynomys ludovicianus.)
 - 1 Colorado Raven (Corvus cryptoleucus).
- 14 Dr. Means.
- 3 "White-top" Quail (Gallinula squamata arizonensis).
 - 6 "Prairie Dogs" (Cynomys columbianus).
 - 1 Colorado Raven (Corvus cryptoleucus).
 - 1 Burrowing Owl (Speotyto hypogaea curriculata).

25 Total.

April 10th.
In camp at Frisk's ranch. Skinned Prairie Dogs and birds all day. The White-necked Raven (Corvus cryptoleucus) is very abundant at the ranch, and extremely tame. Several were shot by the men; and I gave Mc Nally my shot-gun to procure me a specimen, which he did immediately. It was very hot in camp. An ambulance with some officers and ladies came in from Fort Grant on the way to Wilcox to the Railroad depot about six or eight miles from here. Mc Nally shot a lot of rabbits and reported nothing else in the vicinity of our camp.

April 11th

To-day eight troops of the 3rd Cavalry will encamp at Triske's Ranch, and join us at Bowie Station to-morrow, together with one Troop from Fort Bowie making eleven troops, one troop being stationed at Jefferson Barracks, Mo. We marched 22 miles to Bowie Station. The country was rolling, covered with excellent curled gramma and black gramma grass, with a few low mesquites and occasional patches of sagebrush, in which a couple of Sealed Quails (Callipepla squamata) were seen. Then we descended to the railroad where it crossed the Chiricahua Range at a point named Railroad Pass, separating a spur of the Chiricahuas, the Santa Bonita, from the main range to the south, where a prominent peak crowned by two heads called the "Doce Cabezas" forms a prominent landmark. At Railroad Pass we first found Cassin's Finch (Penocaea caseini). It was singing very sweetly among resembling Dumetella neglecta's on a small scale, from the top of a bush near a dry watercourse. The only other birds of special interest we Colorado Ravens (Corvus cryptoleucus) which was abundant all the way to Bowie Station. No trees were seen on to-day's march, and scarcely any shrubbery save along a dry bed of a stream between ~~Railroad Pass~~ and Bowie Station. At Bowie were a number of Burrowing Owls which infested the neighborhood of the slaughter-house, and were heard sounding their remarkable notes during the night.

First Col. Gendrin had come down here from Grant, when he was on Court Martial duty, to see his Regiment off, and he entertained his Son (Dr. Le.) and myself handsomely, having fixed himself easily in the D.M. Agent's quarters; but he came down and slept on our tent that night. We spent the evening agreeably telling stories; and I was

the butt for a good deal of good-natured satire on the subject of my apparel, having been "jumped" on by the Colonel for not wearing my uniform. He (Col. Brackett)

April 12th

In camp at Bowie Station. "M" Loop of the 3rd came in from Fort Grant at 10 o'clock A.M., and the eight remaining Troops arrived at three o'clock, having left Fort Grant on the 11th. My two Hospital Stewards (Werner and Hunsacker) reported to me; but the two A.A. Surgeons did not arrive having been unavoidably detained, Dr. Warwick by change in orders and Dr. Carter was subpoenaed by a civil court, as a witness.

My duties occupied much time but I made an opportunity to prepare the skins of a pair of Colorado Ravens, four "White-top" Quail, a Burrowing Owl and the new Cassin's Finch shot at Railroad Pass.

I here threw away the remaining skins of the Prairie Dogs, Colorado Ravens, Greater Yellow-legs and several other things of value for lack of time to make up the Specimens. I repacked the whole of my baggage, and prepared for the trip to Deming. I regarded it as a great misfortune that I had no Medical Officer to assist me, as I had expected, and subsequent events confirmed me in this opinion.

Besides Burrowing Owls, Blackbirds, and a few Sparrows, Shrikes, etc. nothing of special interest was seen about our hot, dusty camp.

A good bath in my tent was enjoyed. I regretted not having had time to visit Fort Bowie, distant only 14 miles, in a valley in the foothills of the Chiricahuas, marked by a high peak called Helen's Peak. The foot hills nearest us were probably seven or eight miles away, wooded with evergreens, and attracting in appearance from this distance.

evening a short shower settled the dust that had blown into our tents all day, covering everything; and the evening was agreeably spent with Dr. Clendinen, Capt. and Mrs. Russell and others.

April 13th.

Marched to San Simon, in San Simon Valley, 16 miles. My orders were to ride in the rear near enough to the column to be accessible if needed; and, from our position on the flank, we had a fine view of the moving regiment, which suggested to the poetical mind of Dr. Clendinen the lines: "See the mighty host advancing, Satan leading on!" The eleven troops, headed by the Colonel of Regiment and his ~~staff~~ (excepting myself, whom good luck, and my scouting ^{doubtless} ~~doubtless~~ exempted), and followed by a long train of wagons, ambulances, and private vehicles, made quite an imposing cavalcade.

The first 6 or 7 miles was destitute of bushes. The wild grama grass and beautiful flowers covered the ground. The yellow poppies covered hundreds of acres, and we found numbers of a pure white variety of the same species. A white species or variety of larkspur was also abundant. About half-way, we came to a wide area of greasewood, with patches of mesquite, gooseberry and sagebrush interspersed. A number of Burrowing Owls and some Jack Rabbits were the only animals of any size, except a few Thrashers and Colorado Ravens.

A nest of the Black-headed Gnatcatcher (Polioptila melanura) was found in a low Koeberlinia Quercarini, the old bird sitting upon the nest. The four eggs, incubated considerably, were successfully "blown" and preserved, along with the nest.

Only one or two small arborescent opuntias were found. A large (Hawks?) nest was found in a mesquite; and Yellow-headed Lits nests were numerous.

April 14th.

Left San Simon, Arizona at daylight and marched 14 miles to Stein's Pass, New Mexico, arriving there early in the forenoon. Distance, 14 miles. We crossed the New Mexican line about 3 miles west of the Railroad station at Stein's Pass. The last mile or two was up a gentle slope through which the S. Pa. R.R. passes. We saw a passenger-train moving westward over the down hill grade at a very easy ~~rate~~ ^{rate}.

In the Pass were very few birds. Hand some scarlet cacti and enormous clusters of Spanish bayonet flowers. Dr. Clendinen plucked a beautiful bouquet for Mrs. Russell's mess-table. Here were more cacti and some large agaves. We found Brewer's Sparrow's nest containing five (5) nearly incubated eggs. As we approached the Pass the valley became broken by deep gullies towards the foothills. The flowers and plants were about as yesterday — Spanish bayonets, White ~~Indian~~ "Pricks" (compositae); fragrant white (scarlet) and orange-yellow poppies, mesquites, sagebrush, mesquites and a few cacti. Many large nests have been found in mesquites — probably Hawks. There were a number of nests of the Yellow-headed Tit. One contained large young ones. I notice but one nest of the Cactus Wren in an arborescent Opuntia, of which plant there are very few indeed in the part of the San Simon Valley traversed by us. Several Thrashers seen by us were not positively identified. There were both species of Ravens (C. C. corax carinatus et cryptoleucus).

A soldier, while gathering fuel, was bitten on the thumb ^{by a Rattle-snake}, both fangs leaving their mark. I immediately applied a tourniquet to his wrist, scarified and sucked the wound, and afterwards cauterized it thoroughly, meanwhile stimulating him on whisky. He was returned for duty next day.

There were a number of large snakes called by the Indians "Rattle Snakes" in our camp. I skinned one that measured 62 inches in length. It was caught by Mr. Nally behind my tent and brought to me alive. I allowed it to encircle my boot-leg with several turns of its lithe body, and was astonished at its constricting force. Our camp on the summit of the Pass was exceedingly picturesque and pleasing, viewed from some neighboring hills, in which we climbed in search of specimens. Nothing of special interest was found in the few scattered cedar, which, by the way are the only trees encountered by us, except those seen upon distant mountain, Mexican Firs Alamos (with the ^{exception of the} single remaining oak at the "Five Oaks" and a few cultivated cottonwoods at Frisk's Ranch) and Deming; and, returning from Deming, trees were not seen (except evergreens on distant mountains) until we reached Dragoon Summit, Arizona. Yucca, and tall Spanish daggers and soapweed were abundant in the Pass.

April 15th.

March 23
Marched 23 miles to a water tank three miles east
of Lordsburg, New Mexico. On the first mile or
two, through the Pass, were greasewood, mescal,
yuccas and Spanish bayonets. In an area of
very tall soapweeds, Scott's Oriole was doubtless
breeding; but I did not then know where to look
for the nest, which, however I subsequently discovered
near Fort Lowell in Arizona. I shot one of these
beautiful Orioles; but it got up and flew away when
I dismounted to pick it up. A few Ravens of both
species were found here. I shot one White-necked
Raven (Corvus cryptoleucus) that flew overhead.
It flew straight on 500 yards and then fell dead
and was found and preserved. Our last camp.

was on the summit of Stein's Pass, with a high hill with rocky precipitous sides on either, ~~hand~~^{hand}. At the foot of the Pass, a mile or two from last camp, we reached a wide valley, in the centre of which is an enormous area of smooth, actually glistening, pale clay-colored soil, which looked like a lake at a distance. A wide margin along the edge of the valley many thousand acres in extent was covered with a rank growth of excellent grass, among the roots of which quantities of small univalve shells were seen and specimens preserved. In it were scattered pairs of Southern Shore Larks, evidently breeding, as shown by the condition of the abdomen of a female shot and preserved. The male flew and fluttered over the body of its dying mate, and was not frightened off until I was within a few feet of it, and then it fluttered and cried overhead. Upon the level centre of this "alkalai flat" as these districts are termed, not a vestige of vegetation exists. The smooth clay surface was finely multifissured, but so hard that our horse's hoofs scarcely left an imprint. The Railroad, for some unknown reason, here describes an arc of a circle; and we cut across it and so easily caught up with the column although we stopped on the way to eat our lunch. There was a strong wind behind us which made it easy for the animals. The wagons fairly sailed across, the mules scarcely pulling a furrow. We next crossed a series of ridges covered rather scantily with greasewood, where the burrows of the *Yucca Spermophile* (*Spermophilus spilosoma*) were abundant, and the animals themselves often seen and heard. The town of Lordsburg is quite a pleasant little frontier village, infested by rowdies and Chinamen. Here we met Capt. Williams again. From Lordsburg to camp (3 miles) nothing of interest was seen. The only Mammals seen today

were Yuma Spermophiles, Southern Pocket Gophers, Desert and Northern Jackass Hares, Wood Rats and tracks of some species of Deer which we noted as "Cervus Macrotis?" with a query.

Birds. - The only species seen were Sage Thrashers, Mockingbirds, Yellow-headed Tit, Cactus Wren, Rock Wren, Logger-headed Shrike (var. eximbitonoides), Western Grass Finch, Intermediate White-crowned Sparrow, Brewer's Sparrow, Black-throated Sparrow, Green-tailed Towhee, Western Meadow Lark, Scott's Oriole, Brewer's Sparrow Blackbird, American Raven, White-necked Raven, Mexican Shore Lark, Texan Sapsucker, Red-tail Hawk (B. calurus), Mourning Dove, Sealed Quail and the Killdeer, the last near Lordsburg. The White-top or Sealed Quail near Stein's Pass. Brewer's Sparrow is here more abundant than hitherto; but it is ubiquitous.

Our camp was ill-chosen, and arrangements about watering badly fuddled up. The wind and dust very annoying.

April 16th.

Marched to Lepas, 17 miles (20 from Lordsburg), arriving early in the day, as we started at daylight. The first few miles was level, grassy plain, succeeded by a broad belt of sagebrush and other bushes. Then we ascended gradually the rest of the march; the country a arid nearly all the way, and carpeted with pretty flowers. Two small rattlesnakes were killed. The species is different from any I have seen in Arizona. They are invariably small (2 feet) and dark with few rattles. Mirages were seen to-day for the first time to the left of the trail, while ascending the hill, a lake appeared to lie, out of which the mountain peak arose and assumed strange forms.

Mammals. - Plenty of holes supposed to be Oryx to be Badger's burrows, were seen. Coyotes, Antelope, Wood Rat, Northern Jack Rabbit and Southern

Pocket Gophers were the only other Mammals seen. The Birds seen were Sage Thrasher, Mockingbird, White-rumped Shrike, Intermediate White-crowned Sparrow, Western Chipping Sparrow, Western Grass Finch, Brewer's Sparrow, Black-throated Sparrow, Lark Bunting, Yellow-headed Blackbird, Western Meadow Lark, Brewer's Blackbird, American Raven, White-necked Raven, and Mourning Dove.^{Killdeer} The White-necked Raven frequents the Railroad and is quite tame. Both species follow the command to pick up the food they drop.

April 17th.

Marched to Lape, New Mexico, 20 miles. Reveille at 3:30 a.m. Reached camp at 11 o'clock, a.m. The country a sloping, grassy plain, with occasional soapweeds and Spanish bayonets. Mountains as usual on all sides, ^{but distant} Very few Birds were seen. Antelope signs everywhere abundant. Their abundant tracks show that they have been present in large bands. Deer tracks were also seen. Badger's burrows were numerous. Northern Jack Rabbits were seen. The only Birds seen were: Chestnut-collared Longspur, Western Grass Finch, Western Yellow-winged Sparrow, Clay-colored Sparrow, Brewer's Sparrow, Lark Bunting, Western Meadow Lark, Brewer's Blackbird, White-necked Raven, Mourning Dove and Killdeer Plover. The Clay-colored Sparrow (Spizella pallida) was taken and observed for the first time in my own experience.

April 18th.

Reveille at 3:30 a.m. Left camp at 4:45 o'clock, and marched to camp one mile East of Deming, New Mexico, the terminus of my journey, arriving there at eleven o'clock, a.m. Distance 21 miles (20 to Deming). The route, as for several days past, lay through a wide ~~desert~~ prairie valley with mountains on either

side. Some isolated peaks and mounds were passed at no great distance which were perfectly barren and desolate, although there was a little more vegetation - Spanish bayonets, etc., - along their bases. No shrubbery except stunted mesquites; and most of the birds Passerines. A handsome male specimen of Leassius Finch was shot. The singular, insect-like song of the Western Yellow-winged Sparrow was heard on all sides; but they were so hard to see in the long grass, and so hard to flush as they ran mouse-like through the grass, that none were taken, as we had little time to delay, being obliged to ride within sight of the column.

Numbers of Horned Lads were found in the loose soil around Denning. They were caught together, and some specimens prepared as skins.

Not far from Sage I flushed a Western Meadow Lark from its nest, which was built like the Eastern Sturnella magna's. The nest contained three eggs, which were perfectly fresh, and were preserved and transported safely home. Above is a sectional view of the covered nest, built near some tufts of yellow poppies.

April 19th.

In camp at Denning. Windy and dusty.

April 20th

In camp at Denning. Went hunting in the vicinity of town with Dr. Clendenin. Denning is built in a sandy, dusty plain. The country around is barren and unproductive. There is scarcely any grass. Medium sized mesquites and sagebrush the only shrubbery. There are no trees in the town, which is as in attractive in the daytime as it is boisterous and incivious, at night. It is, in short, quite typical of these unwatched border towns. We found a pleasant

saloon, however, and procured some frozen custard, which was very refreshing after our dusty tramp in the high wind. After making some purchases, we returned to our tent, where we found everything covered with dust one of the flaps having loosened and brushed a peck of fine dust over our bedding and baggage. With our tent banked up with dirt we found it close and disagreeable enough, while outside it was still worse. The only mammals seen were Coyotes, ~~Fox~~ ^{*Urocyon*} *Spilogale apilosoma* and Northern Jackass Hares, of which latter I procured a female specimen, having a singular deformity of the skull with accompanying distortion of the teeth.

The birds seen were: Mocking bird, Cissal Thrasher, Pileolated Warbler, White-rumped Shrike, Western Grass Finch, Intermediate White-crowned Sparrow, Brewer's Sparrow, Black-throated Sparrow, Green-tailed Towhee, Brewer's Blackbird, American Raven, White-necked Raven, Ash-throated Flycatcher, Sparrow Hawk and Turkey Buzzard.

The specimens preserved were: One Jack Rabbit, 2 Cissal Thrashers, 1 Ash-throated Flycatcher, 1 Pileolated Warbler, 1 Green-tailed Towhee, 3 Brewer's Sparrows and 1 Black-throated Sparrow. Total. 10.

April 21st.

In camp at Denning all day. The Doctor and I had intended to drive over to old Fort Canning, but a horrible dust-storm prevailed all day and night. Unable to leave camp. Several tents were blown down, among them our mess tent. Those officers whose tents were down congregated in the domiciles of their more fortunate comrades. Our tent was packed all day; and everyone was good natured and jolly in spite of mishaps and discomforts. The light wagons had to be lariated down to the ground. Skinned a Jack Rabbit, horned toad and nine birds.

April 22nd.

Still in camp at Deming, waiting for the arrival of the 10th Cavalry. In the morning we went hunting towards the southern foothills. Walked all the way around the town of Deming. The town is built on the supposed underground course of the Minibex River. A belt of mesquites marks its course. In the range north of Deming rises Cook's Peak. Behind a smaller peak to the right, distant about 15 miles is old Fort Cummings garrisoned by a handful of soldiers, commanded by a Lieutenant.

The 10th Cavalry arrived at 3 o'clock P.M.

April 23rd.

The 3rd Cavalry left Deming en route for Texas at sunrise. I said fare well to Mrs. Russell and the Captain, Dr. Clendenen and Troop "K" of the 3rd.

In camp all day with the 10th Cavalry. Weather a trifle less cold, dusty, and disagreeable. Dealed with Capt. T. A. Baldwin upon Mrs. Capt. William, at Deming, and met Mrs. Capt. Smithers there.

April 24th.

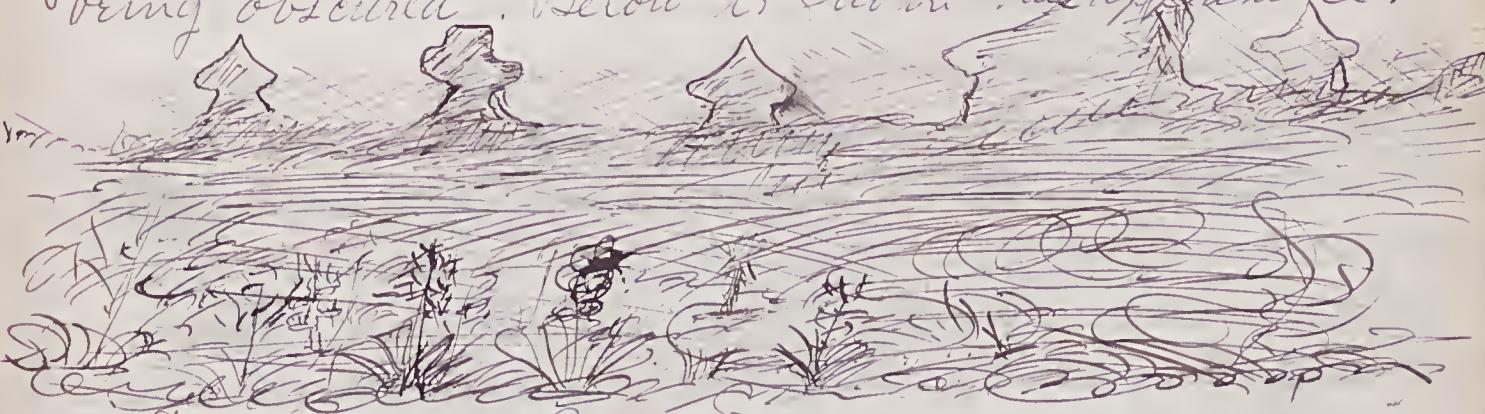
Marched from Deming to Gage, New Mexico, 21 miles (20 from Deming). The ^{Weaver} ~~leah~~ plain, whom I invited to share my tent rode with me. "Gophers" (*Spelosoma* ~~tereticaudus~~) were seen about Deming. The only bird of special interest was a specimen of *Peneeca ruficeps boucardi* which I shot near Gage. The country a wide valley, with a few low mesquites just unfolding their leaves. Moun-lains on either hand, and good grass after the first six or eight miles. The day was calm and pleasant.

Around some corral at Gage, built of bear grass (Yucca) with cedar posts, were a lot of Doves and Yellow-headed Blackbirds, which species we also saw at Deming. The Blackbirds' notes are unique.

and parring upon the car. An ^{male} Barn Swallow (*Hirundo erythogastra*) ^{stomach containing a worm}. We rode through the principal streets of Deming. A number of ~~young~~ ^{adult} *Spermophiles* were seen in the mesquite mounds.

April 25th.

As my orders were to ride with the Red Cross ambulance, between the column and wagon-train, I was deluged with dust, and had no opportunity for observation. A pair of the small dark-colored Rattlesnakes were lying at the entrance of their burrow, copulating, within a foot of the trail over which the whole twelve Troops had just passed. I shot both at once. The country is grassy, with bear grass, Spanish bayonet and a few Leaved Cacti. I could see that this vegetation increased in abundance towards the foothills which were sparsely wooded with cedars, just discernible in the distance. The mirages were very distinct and curious. Marshes with blue water shining through the grass and large lakes seemed to exist at a little distance; and the foothills assumed fantastic shapes owing ^{to} the ~~the~~ part of their bases being obscured. Below is shown this appearance.



A village of Prairie Dogs and Cows, was passed. The dogs were barking still although the entire column had just passed. I fired at two owls but did not kill either. Being obliged to ride with the ambulance, I could not stay behind to hunt them any longer.

We marched to Separ, 20 miles.

April 26th, 1883.

Marched to Gardsburg, 20 miles.

A broad plain between foothills with higher mountains rising beyond. Towards the South were the Chiricahuas, covered with snow. The chants and trills of Cassin's Sparrow (*Penaea cassini*) enlivened the march; but I was compelled to ride with the column and could obtain none of them. At Gardsburg, a Woodhouse's Jay, the first seen since March, sailed over my ambulance in camp, flying about among the tents horses and soldiers in a dazed sort of way, ever restless and betaking itself to flight. Evidently, it was crossing the plain from one mountain to another. This is the only one seen on our march, east of the Agua Fria.

April 27th.

Marched to Stein's Pass, 20 miles. After travelling a few miles, we crossed a low range of foothills, clothed with greasewood and a few arborescent cacti, some of which for the first time, going ~~forward~~ contained nests of the *Lactuca* when. *Yuma Spermophiles* were here abundant, and their hissing whistle was constantly heard as we were passing. A Pileolated Warbler (*Mycroceus pusillus pileolatus*) was seen here; and Mockingbirds were abundant. The Orioles that we saw here when going eastward were perhaps frightened out of the way by the passing column. A cotton-tail (*Lepus sylvaticus arizonae*) was shot and preserved. Although small it was an adult male its testicles being largely developed. After crossing the ridge, a wide valley interposes between it and the range of hills in advance, of which Stein's Peak is the highest point, and situate just north of the Pass and St. Pa. Railroad. This wide valley has excellent grass, among the roots of which are a quantity of small mammal shells of which specimens were collected.

In the centre of this valley is a large alkali flat, bounded only by the horizon line to the north, and totally destitute of vegetation. It is smooth and level, but finely pitted, and so hard that a horse scarcely leaves an imprint in passing. This area is several miles wide. The earth is pale buff. In the grassy part of the valley are numbers of Mexican Shore Larks which are breeding, but whose nests I had no opportunity to search for. Mockingbirds and Sparrows of several species were abundant and singing; but my duties prevented me from hunting for specimens. I was glad to find time to preserve my rabbit.

April 28th.

Marched to San Simon, Arizona, 14 miles.

After my tent was struck, I hunted about camp. Agaves (mescal), Spanish bayonet, bear grass and low mesquites, together with flowering annuals and good grass, constituted the salient floral features of the place. Mourning Doves were very abundant. A "White-top" Quail (*Callipepla squamata*) was crying harshly, uttering a single call-note. Then it flew, and alighted upon the top of a tall dry stalk of the mescal, and began calling a bi-syllabic note very like the common cry of the domestic Guinea-hen. Rabbits were very abundant in the Pass. A number of cotton-tails (*Lepus sylvaticus arizonae*) were seen to enter burrows which I believe they excavate for themselves, as I also believe the Eastern Gray Rabbit (*Lepus sylvaticus sylvaticus*) does, although this is contrary to the generally received opinion of naturalists. *Yuma Spermophiles* were abundant.

Around the bold cliffs at Stein's Pass a pair of Golden Eagles, the only ones seen on the trip were circling about; and it is quite probable that they breed there. Rock Wrens have young flying

April 29th.

Marched 16 miles to Bowie Station, Arizona. Breakfasted early with Capt. T. A. Baldwin, and then walked back 2 miles towards Stein's Pass to a water hole where I had seen some Killdeers when marching and thought I might find some birds of value to me, as that is the only water in the region, and is surrounded by long grass. On my way there I saw a Mexican Shore Lark (*Eremophila alpestris chrysolaema*) singing its love song upon the top of a bush! I found the shallow pool, now nearly dry, and from it a water course where Doves were congregated in large numbers about the small quantity of water, which was strongly alkaline. The Killdeers were there also, and the pair taken and preserved. I returned to camp just in time to march with the Red Cross Ambulance according to order. Marched to Bowie Station and camped.

Large nests in mesquites were occasionally seen but there was no opportunity for examining them. Nests of ^{the} Cactus Wren and Yellow-headed Tit were numerous, although there was scarcely any cactus for the former to build in. The greasewood was rank and regularly disposed in lines or rows in some places, like a currant patch. Large lizards were very abundant. By the way, small Horn Lizards were often seen in the grass in New Mexico.

April 30th.

In camp at Bowie Station. We had mustered of the whole regiment this morning, after which I got permission to go hunting, and left at eleven o'clock a.m. after dispatching my monthly rations, and walked over to the southern foothills, ^{at the north side of the} Chiricahua range, a distance of some half dozen miles. In a ravine of these foothills of the Chiricahua Mountains, which I ascertained were

many birds; but my supply of cartridges loaded with fine shot had been exhausted on the way to this spot, and I had to regret being unable to procure specimens of such birds as Costa's Hummingbird, *Vireo vicinior*, and several other desirable species.

The Gray Vireo (*V. vicinior*, Coues.) sang loud and sweet. They also have a loud call-note, and are rather shy. Scott's Oriole (*Icterus parisorum*) were numerous and doubtless had nests in the vicinity. Pilolated Warblers, Intermediate White-crowned Sparrows, Blandings (Green-tailed) and Canyon Towhees and Crissel, Thrashers were also abundant. A Thrasher's nest, found in a ^{brushy} arroyo near the foothills, contained 2 newly-hatched young and one egg; and young of the same species were on wing, as were also young Western Meadow Larks. A mile from the foothills, near a dry arroyo, I almost trod upon a sitting female Scaled Quail, that whirred off from her nest at great speed. The eggs, twelve in number, were but slightly incubated and were brought safely home to Gila Verde. The nest was in the centre of a tuft of grass; perfectly circular, lined with feathers of its own species, surrounded by pretty yellow poppies, and close beside a cactus (*Cereus*

) bearing handsome red flowers. The parent did not return during the greater part of an hour that I waited for her. Then I followed her and got within a few feet of her, but she ran so swiftly and hid so deftly that she got neatly out of range and then flew: I missed.

Giant Cactus Wrens were breeding plentifully. Some young were on wing. One set of 3 fresh eggs was taken with the parent. Other nests were not yet completed. The nests were lined with feathers, many of both species of Quail (*Lophortyx gambeli* and *Callipepla squamata*), Scott's Oriole, Road-runner and Mourning Dove.

Mourning Warblers (Macgillivray's) and Yellow breasted Chats were numerous along some small streams flowing from the foothills; and, in fact, many birds were very common there, especially Doves and Gambel's Lark. Returning to camp one other "White-top" Quail was seen in a grassy place, returning to camp. It sat in a mesquite, and allowed me to get to within a few feet of it. On the foothills are cedars, oaks, barberries, blackberries and other green bushes, besides mesquites along their bases. The Leuctus Wrens nestled for the most part in mesquites. One nest was built in a tall soapweed, and others in yuccas. Arkansas and Ash-throated Flycatchers were numerous. The mountains are broken (trap?) rocks, very rugged and hard to climb. The Striped-backed Horned Toad, like those skinned at Deming, New Mexico, was captured. Jack Rabbits half grown were common. Cassin's Sparrow (Perocaea cassini) was taken. Its notes ^{coryphic} ~~make~~ a chant somewhat like Spirilla pusilla, ending in a trill. I returned to camp much fatigued just in time to blow my eggs before "Surgeon call"; after dispatching which I had a nap before dining. We had music by the band as usual during the evening. Will probably remain in camp here to-morrow awaiting the arrival of recruits and horses. Macgillivray's Warbler and Verissal Thrasher were found near here on the dry plain. Burrowing Owls live in burrows of the ~~Tot~~ ^{Verreaux} Spermophiles. The Verde Long-tailed Lizard is common here and all the way to Stein's Pass.

May 1st.

Marched to Willeox, 124 miles. We were glad to leave nine companies of the 10th, and proceed with the other remaining companies, and the camp followers properly belonging thereto. From Deming, New Mexico, to Bowie Station, Arizona, the command was accompanied by fifty children and nearly as many women, which

complement gave me, the only medical officer, a great abundance of work. Colonel Garrison hereafter proceeded by rail meeting us at the stations. I was at last free to ride independently of the command and study the physical features of the country more closely and at my leisure. The last third of the day's ride was over a new route, namely along the S.P.A. Railroad. When marching to Deming, we left the railroad at Tucson, and did not reach it again until we got to Railroad Pass, near Bowie Station. Returning, we followed the railroad to Benson, and thence to Mountain Spring in one day's march, so that the distance from Railroad Pass to Mountain Spring by way of the railroad and Benson was all new country to me. The rest of the return route was the same as that going.

Between Railroad Pass and Willeox a "Prairie Dog" village was passed. I shot one dog, but it could not be got out of the burrow although I could see it kicking within; but I secured one of several Quails found there, and wounded another at Willeox; but it escaped, winged, into the burrow. They run swiftly when wounded and dive into the nearest hole. Mexican Shore Larks are abundant, and breeding. A young in first plumage complete was taken. Cassin's Finch (Perocaea cassini) was chattering at various places along the way. One flock of Cinnamon Teal flew over our camp at Bowie Station. There is still snow on the highest peaks on either ^{both} sides of us.

We could see the Point of Mountain where the large Prairie Dog town lies, and I think that those found along the Railroad are a part of the same colony in which case it covers an even greater area than I at first supposed. The energy of their barking and accompanying bobbing motion of their bodies is very funny.

May 2nd.

Marched to Dragoon Summit, 20 miles. A level grassy plain or prairie with an alkali flat destitute of vegetation and several miles wide. Then we reached the foothills, where a herd of Antelope were fired upon by the soldiers, but none killed. The last mile was all up a gentle slope to the summit of the pass, where a herd of Mule Deer were seen in the cedar-clad foothills to the south. The range of mountains south of us is well wooded above a certain elevation, probably with pines, while the foothills are more or less clothed with cedars. It began to rain at dark and continued hard until midnight. I had the steward (Max Werner) make down his bed in my tent as he had neither tent nor canvas; and the J. Ambulance was filled with traps belonging to Col. Garrison. Near Dragoon Summit I found a dead Long-eared Owl. There are a few nut flowers here. The few Burrowing Owls seen were merely things of any great interest seen en route. They were very shy. Would fly away from their burrows when ever approached, flying several times and finally returning to the burrow whence they started and enter it. Their flight is low, alternately fluttering and soaring. They utter a call-note when flushed. (Fort Yuma?) *Spermophiles* had formed a large colony west of the alkali desert.

May 3rd.

Meadow A.

Rose early and breakfasted with Captain Baldwin and then started out on foot northward, and soon found a village of Prairie Dogs and Owls among the rolling grassy slopes, and with much trouble succeeded in killing a handsome male. A Cotton-tail (*Lepus sylvaticus arizonae*) in the village sat in the entrance of its burrow too. I suspect that

they dig burrows for themselves; and I know that they live in them.

I rode with Captain Baldwin a few miles then followed an arroyo, along which were some Walnut and other trees and shrubbery. Birds were abundant. Mockingbirds were numerous all the way. I climbed to the nest of Cassin's Kingbird, when the parents made a great outcry overhead. A Mockingbird, from the top of a mesquite ~~from~~^{on} the bank, imitated their distressed cries perfectly. Verissal Thrashers were very abundant there; but Palmer's Thrasher was not seen until I reached Benson.

Two nests of Cassin's Kingbird (*Tyrannus vociferans*) were found. The first examined contained four fresh eggs, but I lost my foothold when nearly to the bottom of the tree, and broke all of the eggs. The second nest contained a single egg. Both nests were built in walnuts. *Pipilo fuscus mesoleucus*. A nest of the Canyon Towhee was found, containing four young. It was built in a mesquite bush three feet from the ground. The nest was composed of grass and weed stalks.

A 2nd nest contained two (?) young and an addled egg, which latter was blown easily and preserved. It was built upon a grape-vine six feet from the ground, and in structure was similar to the first. A young bird of the year was shot. It flew well. Was afterward lost out of my pocket.

Panyptila saxatilis. - The loud chattering of flocks of White-throated Swift attracted my attention. I got on the highest ground, concealed myself beneath some greasewood bushes, and soon had a good shot, killing a fine male. When I skinned it, the testicles were found to be enormous, measuring 9 X 20 m. m. Hooded and Scott's Orioles were singing. Hummingbirds were numerous, but those identified were all of one species - *Loelilia alexandri*. Gambel's Quail was abundant; but hardly saw one small flock of

Scaled Quail, one of which I shot. Their great speed in running and strength of flight were again noticed. Sayornis sayi had scooped out a ~~nest~~ hole, or found one where a stone had been dislodged, in the side of a clay bank having a narrow slit of an entrance like this  showing only a few straws sticking out of the orifice. This species was to-day more abundant than elsewhere on the route.

Pipilo chlorurus was abundant, and probably breeding. One flock of Audubon's Warblers was seen.

About four miles west of Dragoon Summit a single Gila Woodpecker (Centurus uropygialis) was seen. It was calling lustily and pounding one telegraph-pole after another until it got tired of keeping ahead of me and flew off to one side and lit in a bush. The only one seen today.

I followed the Railroad and cut several bends which shortened my march by several miles. Major Mc Lellan took a wrong road and made the march longer by a dozen miles. Accordingly I got to Benson several hours ahead of the troops, and hunted as much as I liked along the way.

Benson is a mining town, less in size than Globe. They were pouring silver to-night at the smelter.

The bullion was piled up in bars ^{to the height of} six feet high. The Rio San Pedro flows through the town. A Roadrunner and Palmer's Thrasher were the only birds of interest seen along it. Several very handsome Pima Indian girls visited our camp. They made faces at all of the men who attempted to converse with them. Their hands, feet arms and legs are handsomely formed. They were rather short in stature, and broad and muscular.

The colored soldiers went over the town and roared and sang all night. Distance marched, 20 miles.

May 4th

Marched to Mountain Spring, 18 miles. The first few miles from Benson, where we left the Railroad, was in the valley of the San Pedro, thence up upon the plateau. When ascending, a number of birds were seen but nothing new. The slope is clothed with ^(Prosopis glandulosa Torrey) mesquites, and other bushes in which Gambel's Quail, Northern Jackass Peacock, and several species of birds were seen.

On the rolling plateau, broken by deep gullies, was no shrubbery, but good grass, in which were large mounds of the ^{(Succowia) Opuntia} Opuntia, upon which Mexican Shore Larks habitually sit to sing their love songs, and, probably, also to ~~sing~~ catch ants. There I heard Coturniculus passerinus perpallidus singing its insect-like ditty. After crossing the Railroad we came to orchard-like areas of mesquites, many of them 25 to 30 feet high, in which were found several nearly completed nests of Syrranus verticalis. A Roadrunner was found in a mesquite 4½ feet above the ground. It contained two fresh eggs. An other nest was found in a mesquite 15 feet from the ground. A third was six feet from the ground. All of them looked about like average nests of the Green Heron, with the addition of a little grass, stems of plants and cow manure for lining. Near Mountain Spring I secured 5 nearly fresh eggs of the Mockingbird from a nest in a boxelder tree. At Mountain Spring a clutch of 2 eggs of Phainopepla nitens was taken from a walnut tree. The male bird was sitting on the nest when it was discovered.

A large flock of Turkey Buzzards roosts at Mountain Spring where they were seen going to roost in the large cottonwoods. At dusk I shot a bat, when they all rose and came skinning over the cottonwood-tops in the twilight with weird effect, their wings beating

the air with a ironing sound like a swarm of flies. White-winged Doves (Melopelia leucoptera) were cooing mournfully in every cottonwood, and numbers drank at evening in the stream. Their evening draught was drunk and they retired to roost for the night long before the Mourning Doves retired, cooing occasionally until dusk, after which they were quiet, while yet the Mourning Doves were whistling through the air in large numbers above the swampy pool at which hundreds were still drinking, within a few yards of our tents. They roost in the cottonwoods, willows and mesquites at night.

A new bird (Pyranga aestiva cooperi) was found on the stream a few miles from Mountain Spring, in some cottonwoods. Numbers of the young of the year Yellow-headed Lits and Cactus Wrens were seen flying.

Melopelia leucoptera. The beautiful White-winged Dove was made a special object of search on this trip, but, excepting a single one seen at Fort Verde last summer none were seen until to-day (See note above). As I sat at dinner with the Captain, beneath the spreading arms of a huge cottonwood, the Capt. spoke of some red birds that he had noticed in the cottonwoods about our camp before I arrived. I glanced up into the tree and saw a White-winged Dove settle in the trunk above us, and begin its mournful cooing. Dozens of them were seen before we concluded the meal, after which I took up my gun and quickly had three of the beautiful birds at my feet, admiring their beautiful plumage. When courting in the ~~tree-tops~~ branches they lift up their tails with a brandishing movement. They are quite gentle, preferring to attempt concealment in the foliage to flight; and its appearance is peculiarly gentle and neat and beautiful.

Between the point where our trail crosses the

Railroad and Mountain Spring, I picked up a Box Tortoise (Terrapene ^{testacea}) ^{which} ~~had~~ some brutal soldiers had crushed with a carbine but. Notwithstanding this imperfection I skinned and preserved the specimen. I was told that they are fond of staying between the ties along the Railroad; and my informant was of the opinion that this is because they are attracted by the musical sound produced by the ringing metal when trains are passing even when at a distance of several miles; but the more probable reason for their occurrence along the track is the obstruction to travel which the latter offers. The track doubtless proves an effectual barrier to them and causing them to seek to pass beneath it, ~~under~~ ^{between} the wooden ties. This is the only one seen on the trip. At Mojave I saw a much larger turtle, probably of a different species, several specimens of which were in the possession of Dr. Ord, Post Surgeon.

A very large Slender Lizard was shot near Mountain Spring. When shot its tail appeared to be bright green, but when picked up it was dull in color without any green. Do they change colors instantaneously?

May 5th

Marched 18 miles to Fort Lowell, A. S.

I arose and breakfasted early, and then set out to explore the ^{branchy} little stream at Mountain Spring which I had not hitherto had an opportunity of doing. As soon as my things were packed I started up the stream, among the cottonwoods, box elders, walnut and ash. The aspect of the country in all this region, especially that here, along the stream beyond, where the Cooper, Gila and San Pedro meet, has changed much since we passed there before.

(*Prosopis glandulosa* Torrey)

The leaves on the Mesquite and other trees, save the cottonwoods which were then in leaf, lend a sylvan charm to the country, covering up much that before was bare and uninviting. In the belt of timber along the stream are grape-vines growing upon the trees. The cottonwoods are enormous, but none so large as that on the Agua Fria which measured 34 feet in girth four feet above the ground. White-winged Doves were courting in the cottonwoods, spreading their handsome tails or jetting them upward as they sat beside their mate, cooing loudly. Several nests of *Vireo phaeillus* were found. One was carried to camp, but the four eggs which it contained were too far incubated for preservation. Perched upon a dry willow top was a beautiful new Hummingbird (*Chrysolampis lateristris*) which was fortunately secured. A nest of *Trochilus alexandri* with the parent bird was taken near by, from a ^{drooping} _{cluster of} grape-vines. Vermilion Fly catchers went fluttering upward toward the zenith, showing their rich plumage to advantage. The Chats whistled ^{to} and mocked each other, and displayed their usual accomplishments of voice and aerobatic feats. Gila and Lewis's Woodpeckers, Malherbe's Flickers and Turkey Buzzards were very abundant, as were many other birds. I was obliged to hurry away long before I had investigated the spot to my satisfaction.

On leaving the place, some fine forests of Giant Cacti were passed upon the conical hills bordering the pass, mixed with brachia cacti (*Echinocactus wislizenii*) in fruit, yellow-flowering prickly pear (*Opuntia*) and red-flowering arborescent Cacti, and "corral-wood" (*Houguea splendens*) bearing red flowers also. Leptes Worms and their young families were numerous. I saw the opening cycle of buds upon the summit of the ~~sophora~~ ^{*Kinnowia macrophylla* (Jacq.)} for the first time. The green-barked ~~sapote~~ ^{*Kinnowia macrophylla* (Jacq.)} or Palo Verde (*Par-*) is an exquisitely beautiful small spreading tree,

now laden with yellow blossoms. A Gila Monster (*Heloderma suspectum* Leop.) was seen in the trail and quickly captured. I set my gun upon its back and picked it up. It made a loud blowing noise, and emitted a pungent odor, which I can only compare to that of a wasp in quality, but wholly different, peculiar and disgusting. I punctured its medulla with a pen-knife and carried it to camp in my saddle pocket. In the evening I stuffed it in Dr. Hopkins' quarters. This is the first I ever saw. The markings fade when the skin dries. They are handsome when living. The black has a purple lustre, and the light marks are bright reddish-orange. They dart out their tongues like serpents and attempt to bite. Their skins are thick and tough, and closely adherent to the flesh, being very difficult to remove. The skeleton is exceedingly strong. They can easily be overtaken when attempting to escape by running.

"White-top" Quails were numerous. I shot two rising near together, on the wing, but one could not be recovered. Then I shot a pair at once on the ground. Attracted by their loud cries I saw two males fighting fiercely for a female. I shot two of them with one barrel upon the ground, and the remaining one on the wing, as she raised, with the other. On passing a place where we saw leave St. Lucia Cardinals when going I also found a pair to-day, and shot the female on the wing, but did not find time to skin it, and only preserved the skull. A number of White-winged Doves were seen about this place. There are some Mexicans' ranches near the place, and doubtless water, although I did not visit them.

A nest of *Lecocarpus californicus* (Road-Rumy)

was built in a large, round-jointed, red-flowered cactus, beside an old nest of the same species, which contained five young covered with lead-colored quills like those of young Coucoos.

A Scott's Oriole's nest was found suspended beneath the dependent leaves of a large and tall soapweed *Cyneca*, built of thin white fine threads of this plant, lined with cottony fiber—an exquisite structure. The parent was shot as she flew from the nest, which contained four eggs, much incubated.

A fresh egg of *Buteo borealis calurus* (Red-tail) was taken from a nest in a mesquite-tree, 15 feet from the ground, built strongly of sticks, lined with some grass and weed-stalks. Concavity, considerable. Egg, blu. We camped on the Rillito Creek a mile above Fort Lowell. Spent the evening with Dr. and Mrs. Hopkins, looking at specimens of birds which the Dr. had taken during my absence, and talking garrison gossip. Chats and Mockingbird, sang all night, and the purring of the stream close beside my tent sounded pleasantly.

May 6th.

In camp at Rillito Creek near Fort Lowell. Rode to Tucson with Capt. Baldwin and Dr. Hopkins in the morning. In the little park through which flows the Santa Cruz River in the midst of town were some Lewis's Woodpeckers.

Small fruits were abundant and cheap in Tucson.

Spent the afternoon in my tent writing official papers and skinning birds. Cooper's Tanagers were quite numerous and frequently alighted upon some dry twigs or cottonwood top near the water. Dr. Hopkins tells me that they are breeding in the Post of Fort Lowell. He showed me a beautiful male that he shot at the Mission of San Xavier, so

miles south of Tucson. It was a pretty sight to see them flying along the edge of the Rillito in front of my tent, while I sat within skinning birds and making out my official papers.

May 7th.

Marched 26 miles to Rillito Station. After packing my things, I made a hasty examination of the Rillito in the vicinity of our camp. Large cottonwoods with an abundance of *Salix nigra* and *S. occidentalis longipes* (*Negundo*) with a few willows, a few box elders, and ash, were the principal trees. They were festooned with grape-vines in full bloom and fragrant. Beneath were the beautiful and fragrant *Daturas* and Elders also in bloom. The bed of the stream is broad and sandy, the water channel narrow and tortuous. The sand was hard and white. The Cooper's Tanagers (*Pyrrhula aestiva cooperi*) uttered a spasmodic, impulsive "Ke-dek, Ke-dek" sounding me of some of the flycatchers. Dr. Cooper says that this call in the language of the Maricopa Indians means "come here & come here". They were flying in pairs. I shot a pair at the same shot in a willow. They seem to prefer them to cottonwoods. They like to alight in a low situation on ~~cottonwoods~~ *Erythromelias* a dead branch, as does *Pyrrhula phoenicea*. A couple of females were taken in addition to the pair, but one escaped, having been slightly wounded.

Colonel Garrison sent for me, and I expected some unfriendly demonstration; but he shook me warmly by the hand and offered to serve me when he reached headquarters and to attempt to send transportation for my effects down from Whipple. His order compelling me to ride with the wagon train for several hundred miles was evidently a source of uneasiness to him.

Road Runners are numerous about Lowell. The

The first specimen I shot after leaving the Post was a gorgeous male Saint Lucas Cardinal. The female was shy and escaped.

A nest of Harpophynehus cinerinus bairdii was found, containing three eggs, perfectly fresh, built in a grape-vine, overhanging a small tree, beside Rillito Creek. One was accidentally crushed after reaching Fort Verde in safety.

Ash-throated Flycatchers were abundant, and I shot several hoping to find Myiarchus cooperi which is said to breed abundantly about Lowell; but I saw none. A clutch of Ash-throated Flycatcher eggs were found in an old mesquite stump; and both old birds shot. After leaving the Rillito a Mexican's bar farm was passed and around an other ranch were the largest mesquites I have seen in Arizona, unless some of those near Mojave. A Malherbe's Flicker was shot.

On the ascequia near Tucson I shot a Duck Hawk (Falco peregrinus naevius), and found Phainopepla nitens, Yellow-headed Lts., Lucy's Warbler, and many other birds exceedingly abundant among the tall mesquites. A nest containing five eggs of the White-rumped Shrike was taken and White-winged Doves were found in the mesquite, one of which I shot. A family of Texan Cardinals (Pompholoxia ornata) was found near Rillito Station and an adult female secured. The male uttered a loud note of two syllables, but was too shy to be secured. A young one was shot on the wing but fell in a huge wood-pile near the Railroad and could not be got at. The district traversed to day is a splendid collecting ground.

The Texan Cardinal was also seen near camp at Lowell this morning. An enormous Diamond Rattlesnake was killed. A Long-eared Prairie Fox (Vulpes macrotis) was shot up beside the railroad and looked fixedly at me as I passed by.

May 8th.

Marched 15 miles to Red Rock. The country level, with greasewood, sagebrush, mesquite and giant cacti. The smaller cacti were abundant. A nest of the Black-capped Gnatcatcher (Poliostila melanura) was found in the fork of a greasewood and the egg (5) and female parent (No. 3994) secured with nest. Families of Bendire's and Palmer's Thrashers were everywhere, seen, as were those of the Lactus Wren, Black-capped Gnatcatcher and Yellow-headed Lt.

The Mexican Hare (Lepus callotis callotis) was more abundant than I ever saw it elsewhere on the road.

As many as six were seen running together, and I killed two adults at one shot. I brought two of the finest specimens in to camp on my saddle (♂ and ♀ ad.); but only found time to skin the male, and kept the skull of the female. A number of these Hares were shot, both young and old. I regretted not having time to skin more of them. I gave some of them to a soldier, who promised to keep the skulls for me but neglected to do so. When running they leap high in front instead of kicking up behind and are very much larger than Lepus texianus^{Woodhouse}, while their colors serve at once to distinguish them at any distance.

Many of them are very shy, running long before you can get within rifle range, while others are as tame as the common Jack. The soldier killed dozens of them on the march.

When about 5 miles from Red Rock, I saw a very large nest in an enormous giant cactus, and upon it a bird. Having seen a number of these nests in cacti, I was anxious to discover the bird that builds them. Managing to get around behind the large branches of the cactus, I crept up to within a few yards of the nest, and shot the

old Hawk (Buteo borealis calurus). She was very pale in color, especially the old feathers of the tail; but a couple of new ones about half grown out were much darker. A colored soldier came up and I asked him if he thought there was any thing in the nest. He replied, "Don't know, sah, but I reckon dar is."; and then I asked him if he would mind climbing up to the nest, intending the question as a piece of pleasantry. The nest was an enormous pile of sticks in the axils of two huge arms of the giant Sophora. The trunk was as large around as a hog's head; the nest 15 ft from the ground, and the Sophora armed with long spines, as sharp as needles. To my astonishment he agreed to climb up; but asked me to give him a boost, which I did heartily, enabling him to thrust his fingers into an owl's or woodpecker's hole and draw himself up to the lowest branch in which was a hole which gave him a hold and enabled him to climb upon the lowest tier of branches and so reach the nest. He threw down two downy young in succession, and afterwards an addled egg, not much larger than a hen's, considerably elongated and nearly equally rounded at the two ends. It could have been "blown" successfully, but chanced to be accidentally crushed before I reached camp. The young birds ate meat greedily and one of them lived several days before I found time to kill and skin it.

The female parent was carried along for several days, but I never found time to skin it. It was very pallid, probably due to fading, as the new tail-feathers were quite dark red, but I remember noting that the tail was plain and it may have been the famous Sanit-Lucas Red-tail. An Antelope (♀ ad.) was shot by a soldier in "M" Troop.

May 9th

Marched 14 miles to Picacho Station, Arizona. A number of immature specimens of Black-capped Gnatcatchers were shot, and the old ones were abundant. All of my notes of Plumbeous Gnatcatchers (Polioptila plumbea) probably relate to females or young of this species, and I question the genuineness of the other species.

As usual, the Lazurus Wrens, Palmer's & Bendire's Thrashers, Mockingbird, Gila Woodpeckers, Matherne's Flicker, Carolina Dove, and Gambel's Quail were characteristic species.

The Scaled Quail (Callipepla squamata) was taken by Mr. Stephens near Picacho Station. Thinking that the sloping base of Picacho Peak would be a good locality for them I hunted faithfully in spite of the intense heat. In a pass behind the Peak I was informed there was a spring, and very probably these Quails would have been found there as well as many other rare and valuable species; but I had not time to search the spot, and saw nothing of them anywhere west of the region between Mountain Spring and Fort Lowell where they are abundant.

At Fort Lowell, on April 6th, I heard a note (and so did Dr. Colcord) so much like that of Ortyx virginianus that I hunted the locality over, hoping to find Callipepla squamata. Since then I have seen plenty of Scaled Quails and believe that it has no such note, ^{It was Ortyx graysoni cooperi E.A.M.} and now believe that it was Ortyx graysoni in the rocky slope at the foot of Picacho Peak, were some Loran Nighthawks (Chordeiles acutipennis texensis), a specimen of which was secured. White-winged Doves cooed mournfully and a specimen was shot upon the top of a Sophora where it sat and sounded its sad notes in the midst of a wreath of white flowers. A beautiful growth of blooming Palo-verde or green-barked acacia

At base of surrounds this pinnacle of rock, upon the walls of which the Echinocactus wislizenii stand bold, out, each "beehive" crowned with a circle of yellow fruitage. On the slope below are the Saguars (Cereus giganteus) and white, deciduous cacti (Opuntia Bigelovii), together with smaller tree cacti and prickly pear. There were dozens of Northern Jackass Hares, showing an evident choice of residence in favor of the hill slopes, while Lepus callotis callotis (I believe the two species are specifically distinct!) may be seen upon the broad desert plain around in equal abundance, but not seen at all in the hill-slopes. It is no unusual sight, however, to see both species running at once upon the plain. They do not associate together, however. Again the soldiers brought in dozens of them, but I neglected to secure the skulls, thinking I would have plenty of opportunity later, which, however, I never availed myself of.

Leaving Picares Peak with reluctance, without seeing the alleged spring, I pursued my way to camp, much regretting the necessity that forced me to pass through this interesting region so rapidly as to permit only a cursory examination of its numerous but hidden treasures in both Zoölogy and Botany. While in camp at Picares Station I persuaded Dr. Buzzard, the Regimental Veterinary Surgeon to chop down some of the inhabited Saguars and try to secure some owls and young Woodpeckers. The only one chopped down contained a nest of the Mexican Screech Owl and one of Malherbe's Flicker. There were four (4) young owls (Scops asio trichopsis) in the nest and the old one was also captured, but escaped before I saw her. I skinned one of the Owls, and kept the others alive in my trunk until after I reached Verde.

A young Malherbe's Flicker (No. 4008 ♀ juv.) was also preserved. This was the first young of the year seen and was fully feathered although the quills were not grown out. The Gila Woodpecker appears to rear its young later in the season. They were heard in their nests in Saguars all the way from Mountain Spring to Bumble Bee, but none were seen or wing; and, as none of the Giant Cacti were cut down for the purpose of securing them, none were taken in first plumage. Many young Flickers were seen on wing from this place to Big Bend when I saw and shot the last (Malherbe's) Flicker. A strict search for Leconte's Thrasher has failed to discover

May 10th.

Marched 19 miles to Casa Grande, Arizona. Several immature Bendire's Thrashers have been shot, when at a little distance, supposing they might be Leconte's Thrashers, but none were seen, although some were seen upon Mesquite trees at a distance which were suspected of being Harporhynchus ridgwayi lecontei, but were too shy to be positively identified. Specimens of Colaptes chrysoides were shot. One in an Opuntia Bigelovii near the Saguaro in which was its nest. In some large spreading mesquites forming a compact grove, and close to some tall Saguars ^{was} a family of Mexican Screech Owls (Scops asio trichopsis), sitting separate upon the branches, drawn up to their full height and blinking and snapping their bills. They were just from the nest, but too strong on wing to be captured, so I shot a couple and made up the skins.

In another large spreading mesquite tree I saw a Ferruginous Pigmy Owl (Glaucomys ferrugineum) flying steadily from branch to branch and shot it. It was an adult ♀ in worn breeding plumage,

and the first I have ever seen. The Sotobradas are all in bloom, and beautiful. The Gualatetes Finches, Lactuus Warms, Black-throated and Brewer's Sparrows, Ash-throated Flycatchers, Green-tailed Towhee, Dark Finch, Dwarf Cowbird, Raven, Texan Nighthawk, Texan Sparrow, Hummingbird (Black-chinned δ), Gila Woodpecker, Mahrber's Flicker, Mexican Screech Owl, Burrowing Owl, Ferruginous Pigning Owl, Sparrow Hawk, Western Red-tail, Mourning Dove, White-winged Dove, and Gambel's Quail, were the principal birds seen. A large Gila Monster was taken. It tried to bite emitting a strong odor, ^{radically from} ~~radically from~~

May 11th.

Marched 26 miles to Maricopa, over a level country broken by deep arroyos in places. A short distance from Maricopa, I saw at a little distance what appeared to be some white rags on a mesquite bush; but rode carelessly up to within a few yards of them, when two beautif. Little White Egrets (Gazetta candidissima) flew away before I could load my gun. I succeeded in shooting one after they had alighted, upon the wing, at very long range, and pursued the other one for several hours. It made a very conspicuous object, and could be seen at a distance of several miles. It flew somewhat in the direction in which I was going, as I could see by the ^{column of} dust from the command. At length I gave up the chase, having arrived in a belt of magnificent mesquite timber, covered with ^{the} parasite mistletoe, and resounding with the notes of birds. Phainopepla nitens was abundant. This is the supposed underground course of the Santa Cruz River. I followed it nearly to Maricopa. Soon after, I shot a beautiful specimen of the Olive-sided Flycatcher (Contopus borealis). Several pretty Warblers - Macgillivray's & Pileolatus - were enlivening the mesquites. When near Sweet Water, I shot a young of the great Le Conte's Thrasher, and near the same place shot a pair, and positively identified and secured their nest

and three fresh eggs. The female was shot from the nest (No. 4,011 ♀: 4,010 ♂). They were observed in the brush. I then examined the nest and afterwards concealed myself under a neighboring mesquite in a position that was scarcely supportable on account of the burning heat ^{radically from} of the white sand. The sharp "whit" of the female kept me apprised of her whereabouts, and, at length, when I was almost roasted, she flew to the mesquite and almost immediately took her place upon her nest.

A chirping call from me quickly brought her to the top of the bush, where I shot her. With the male the case was different. It required a chase of an hour to secure him. He would certainly have escaped were it not for his persistency in returning to ~~near~~ the nest as often as lost sight of. His flight was often low among the bushes and impossible to follow, but when soaring upward into a bush was usually detected. Its sharply reiterated "whit" or "quit" also served to keep track of it. At length a long wing-shot broke its wing, and then I had a chase upon the ground, shooting at it as I ran. Its dexterity in running and hiding among the scattered greasewoods was admirable, but I at length took it, and was compelled to lie down upon the scorching sand completely exhausted, with every artery at its greatest tension, and beating hard. I packed my specimens as soon as able, and resumed the saddle.

The first Wood Pevers were seen to-day - Contopus richardsoni. White-winged Doves were numerous. A specimen was taken in the supposed bed of the Santa Cruz.

In the grove of large mesquites six miles from Maricopa were many Louisiana Tanagers (Pyranga ludoviciana) whose gorgeous hues of red yellow and black glowed in and out of the mesquite forest, in which numbers of White-winged Doves were mourning. A family of Maricopa Indians were encamped beneath the

trees, and were cooking their supper when I passed by.

A few Harris's chipmunks were ~~seen~~ seen between Gosa Grande and Sweet Water. Fort Yuma Spermophiles (Spermophilus tenuicaudus) were seen at intervals, their existence being patent to a casual traveller more by the presence of their burrows and their soft whistle whose source he will be apt to look for in vain. The three species of Hares (L. L. sylvaticus arizonae, callotis callotis et callotis texianus) were represented, and these, together with one or two coyotes (Canis latrans) were the only mammals seen. Western Dark Phoebe, Intermediate White-crowned Sparrows, Swallows, Black-throated Sparrow, Green-tailed Towhee, Lark Finch, Cowbird (Dwarf), Raven, Ash-throated Flycatcher, Olive-sided Flycatcher, Western Wood Pewee, Poor-will, Texan Sapsucker, Gila Woodpecker, Mallow's Flicker, Roadrunner, Sparrow Hawk, Cooper's Hawk, Western Red-tail, Turkey Buzzard, Mourning, and White-winged Doves, Gambel's Quail, Snowy Heron, Mockingbird, Bendire's Palmer's and Le Conte's Thrashers, Black Crested Flycatcher, Black-capped Gnatcatcher, Yellow-headed Tit, Cactus Wren, Macgillivray's, and Piedolated Warblers, White-throated Shrike, Western Tanager and the House Finch, were the birds seen.

May 12th

Marched 15 miles to Gila Indian Agency on the Gila River. Several Le Conte's Thrashers were seen, and heard singing; but I did not succeed in shooting any of them or discover their nest. They sat on the mesquite of which there were but few along some dry arroyos, and sang. Once I shot a Shrike in a dense mesquite, mistaking it for the Le Conte's Thrasher that flew away when I fired. A Shrike's nest containing five eggs was found in a mesquite, and seemed ~~to~~ ^{to} contain ~~maeroticis~~ ^{maeroticis}.

A young Prairie Fox (Vulpes vulpes) ran up towards me and stopped to look at me from

behind a bush, when I shot it (No. 193^{ad.}) from my horse, with a load of buckshot. It ran quite a little way before it died. I followed it and came upon it lying dead upon the sand. It was covered with vermin. Its skin and skull were preserved.

A Mexican Goshawk (Asturina nitida plagiata) was seen, but could not be closely approached.

Young Gila Woodpecker's were heard within the two Pohuanas that were passed. After riding about 8 miles, I turned off to the right and rode down to a broad marshy stream of the Gila River, which we had seen when we passed over this portion of the route before, but did not deem it advisable to go out of our way to examine, on account of the extreme heat and the condition of our horses; but now both "Fancy" and myself were at our ease, and we determined to "take in" the marsh. When I reached the place, much that appeared at a distance like water was only mud, covered with alkali; but there were numbers of pools, surrounded by cat-tails, and tufts fifteen feet high, and so dense as to be impenetrable. Spotted Sand Pipers (Tringoides macularius) and Kelders (Oxyechus nigerinus) were quite plentiful; and there were hundreds of Red-winged Blackbirds (Turdus phoeniceus), whose blith notes made the place seem like one of our familiar Eastern marshes. I shot a male as a souvenir of the place, and then searched carefully for nests, but the marsh was so densely grown with cat-tails and tufts and so treacherously boggy that I could not make much search on horseback, and, when on foot, was constantly in fear of losing myself and not being able to find my horse. A Sparrow was often seen, which I failed either to identify or shoot. A small dark bird resembling a Rail as far as I could make out, in the tall growth, was seen and heard, but could not be secured.

In a shallow lagoon were a dozen or more Wilson Phasianopes. Some were swimming, others running upon the muddy bank. The nearest was seen 20 feet away from me. All were in full breeding plumage with black throats. They were exceedingly beautiful and graceful when swimming, and I was so much absorbed in watching them, that I forgot my need of sleepers allowed the whole flock to escape. They arose suddenly with a sharp call-note, and circled over the marsh until they were out of view.

I followed the main course of the Gila for several miles and noticed that it was filled with small fish and frogs. A tremendous storm had been brewing all the morning. When it broke, the rain descended in sheets, rapidly soaking to parched earth and filling the dry arroyos to overflowing. The soil became slippery and sticky, and the whole surface of the ground was covered with water. In low places, large streams howling down the sides of the mountain. The turkey Buzzards settled upon ledges and were so soaked that they were unable to fly. I urged my horse forward, fearing lest the Gila should have risen rapidly; but when I subsequently forded it, the water had not risen perceptibly. I soon became wet to the skin, my boots and saddle pockets filled full of water and my horse looking like a drowned rat. The water seemed very cold, and my teeth chattered horribly. The sun shone out again just as I reached the Indians farms south of the Gila, and the Indians themselves were a poor, bedraggled set. Their mud huts were filled with children and squaws. Some half dozen boys, as naked as the day they were born, were hunting at a distance from the village with bows and arrows, and had evidently enjoyed the storm. They were on some straight little fellows, with coal-black, lustrous eyes, dancing and wild as they could be.

My dripping figure, and doubtless dog-fur excretion, seemed to fill them with amusement. They pointed and gazed at me as I rode past, and were in high glee after their shower-bath that added to their as much as it detracted from my appearance.

The Indians had a large tract of land well fenced with mesquite stumps and cottonwood poles and under thorough cultivation. They raise barley, corn, potatoes, alfalfa, onions, etc., and appear to be a thrifty people. The Pimas have long been semi-civilized.

Our camp north of the Gila was as muddy as a wet potato-field, and filled with Pima Indians. The young girls went about in bewigs. Their arms and legs are round, plump, and well shaped, and some had quite good-looking faces, with long black hair, neatly "banged" in front. They wore more bright colored petticoats, and ~~wore~~ ^{wore} right blank a front stars shoulders, leaving their arms bare. One girl was very desirous to ^{afterwards Mrs. Wm. H. Smith} paint the cheeks of a young lady (Miss Dasset) in our camp.

Most of the birds which I had shot were spoiled by wetting, so I threw all away save a young Shrike, a Gila Woodpecker and the Red-winged Blackbird, which latter I dried and skinned before returning. Along the ditches and fences in the Indian Settlement were many Warblers, Sparrows, Towhees, etc., and the Great Blue and Snowy Herons were seen on the flats.

Some young men of the Pimas came into my tent and watched me skin specimens. One spoke English well and named some of them as follows:

"Cukha" = ~~Prairie Fox~~ ^{Vulpes velox} ~~Vulpes vulpes~~ (Canis latrans), a young one.

"Sarsha" = Red-winged Blackbird (Agelaius phoeniceus).

"Haquewick" = Gila Woodpecker (Certhiauxropygialis), the groves of arborescent cacti with enormous drooping clusters of fruitage were the resort of families of Cactus Wrens.

Some of these cacti, which are most abundant and largest near Maniecha, were twelve feet high. The rats or other animals build mounds and encircle certain areas with the deciduous joints. They are an admirable protection for the nests which the Thrashers & Wrens habitually build in them; but I have noticed that large lizards often climb them.

May 13th.

Marched 14 miles to Phoenix, Arizona. Early in the morning, I hunted down the Gila River a mile or two. Dozens of Cotton-tail Rabbits were the only mammals seen there; but the tracks and signs of the Black-footed Raccoon and Beaver were found on the Gila and Salt Rivers. Numbers of Song Sparrows, Blue Grosbeaks, Long-tailed Chats, Red-breasted Thrashers, Black-capped Gnatcatchers, Yellow-headed Lits, Lucy's Warblers, Macgillivray's W., Western Yellow-throats, Summer Yellowbirds, Least Vireos, House Finches, Green-backed Goldfinches, Intermediate White-crowned Sparrows, Lazuli Buntings (one), Dwarf Cowbirds, Red-and-buff-shouldered Blackbirds, Western Meadow Larks, Hooded and Bullock's Orioles, Western Kingbirds, Olive-sided Flycatchers, Western Wood Pewee, Little Flycatcher, Vermilion Flycatcher, Black-chinned Hummers, and Gambel's Quails were seen in the dense underbrush of arrowwood, willows and grape-vine, beside the Gila, and in the Cottonwoods along the aequinas in these Indian gardens and grain fields. Some Ravens upon the sand were so tame that I could ride within a dozen steps of them.

Killdeers, Spotted Sandpipers and Green Herons were feeding along the Gila; and a flock of half a dozen or more Glossy Ibis flew down the stream in wedge form. After shooting a nest of Gambel's Quail for our supper, I left the Gila and Tucson settlement, and rode around the front of a

mountain, gradually ascending, the only trees consisting of Green-barked acacias, Giant Cacti, and Mesquites, in which latter a few Black Crested Flysnappers were breeding. We found these birds in great numbers from the Gila to Lowell, when marching towards Texas. They (*Phainopepla nitens*) were much less abundant when we returned over this part of the route, but were very common in the elevated country ^{traversed} after leaving Phoenix, where none were seen when we passed over the same country earlier in the season.

After rounding the point of the mountain we found groves of tall acacias and forests of Giant Cacti in which were hundreds of White-winged Doves, Mahrber's Flickers and Gila Woodpeckers. The Doves filled the air with their mournful cooing, and were constantly in view flying strongly from point to point, sitting in pairs or small flocks upon the green-barked acacias or singly upon giant somaras, or on the ground. They were probably breeding, but a hasty examination of the shrubby and taller acacias proved fruitless. The trail next passed between two mountains the one on the left being a foot-ridge of the main mountain on our right. Here I was passed by the Phoenix and Maniepa stage, containing some well-dressed passengers, who eyed my well-worn clothing and somewhat miscellaneous horse-equipment and baggage with contemptuous amusement. I have noted that the somaras were of somewhat larger size and more branched than those seen between Mountain Spring and this place. I think that one of them would measure forty to fifty feet in height, but this may be an over-estimate. One of its branches would exceed the average size of those growing upon the hills about Bumblebee and New River.

The level plain stretching from the foothills was next crossed. Tall round-pointed (Cylindropuntia) Opuntia cactuses were common, and Bendire's and Palmer's Thrashers were rather numerous. After a ride that was both tiresome and hot I reached the cottonwood of Salt River, which afforded grateful shade although the reflected heat from the surrounding sand was intolerable. In attempting to follow a St. Lucas Cardinal, my horse mired in a quicksand. After a long search at last I secured the specimen, a magnificent adult male, and discovered the nest of the White-winged Dove (Melopelia leucoptera) and secured the single egg which it contained, along with the female parent. Abert's Towhees were also breeding abundantly. A clutch of four eggs was taken from the willow thicket bordering the Gila, in the morning. Road Runners were common here. Several were seen on the River-flat and in the gardens of Mexicans. I saw a specimen of the Scaly Dove (Scardafella inca) in front of a Mexican dwelling, but did not like to shoot it there, much as I coveted the specimen. The Green Heron (Buteoides viridescens) was the only bird of interest seen along the Salt River. There were also a few Killdeers and Spotted Sandpipers. I found our camp pitched south of town upon the site of a small-pox cemetery in which many recent interments had been made.

A clutch of Abert's Towhees' and White-winged Dove's eggs were blown and packed; and then I skinned up some Gila Woodpeckers, the St. Lucas Cardinal, White-winged Dove + Pileolated Warbler. Captain Baldwin and I munched bread and milk during the latter part of the evening, and then retired early, with thoughts of successful collecting on the morrow, to be fully realized.

May 14th

Marched 14 miles, to Desert Station, A. T. A wounded man delayed my start in the morning. A Scaly Dove (Scardafella inca) was shot on the edge of the aequia beside the road in the town of Phoenix. While I was wrapping it up, the column passed. By I then concluded to visit the suburbs of Phoenix on the west and allow the troops to pass some time. The cottonwoods were filled with singing birds. Groves of mesquite were filled with song and flitting birds. An other Scaly Dove was taken, and in an orchard-like field of mesquites, where the ground was covered with luxuriant grass, I found the Ground Dove (Lamapelia passerina), and secured three specimens. The note is a low "coo." They live in the branches occasionally descending to the ground, but not habitually as the Scaly Doves do. Several newly-built nests of yellow grass stems and fine weeds were placed on horizontal branches of mesquite; but none contained eggs.

These mesquite "orchards" were filled with birds; but, as my time was short, I shot no more of them. Returning to the main road I found dozens of the long-tailed Scaly Doves in it and along the aequias bordering it. Some sat in cottonwoods and uttered a double cooing note of doleful sound. I shot four more of them, and hunted the cottonwood hedgerows for their nests and those of the hundreds of Red-winged Blackbirds, whose notes sounded on every hand, but found only nests of Abert's Towhee and took several sets of their eggs. I might easily have taken more specimens of Scaly Doves, had I not already as many as I could skin during the evening. Neither this species nor the Ground Dove were found elsewhere on the trip. The White-winged and Mourning Doves were also very abundant. Phoenix is a city of Doves, all of the Arizona

species, of four different genera, found there in abundance. The large Band-tailed Pigeon is the only other bird of the family found in Arizona, and it is a bird of the timbered mountain regions.

On a fence near town was nailed an enormous Gila Monster (*Heloderma suspectum*). When out upon the desert once more, amid the Cactus, Sotuaras, grasewood and mesquite, a pair of Le Conte's Thrashers (*Harporhynchus redivivus lecontei*) were shot, and the remaining three species of Arizona Thrashers were observed. Palmeri was the most abundant. Several families of Young Malherbe's Flickers (*Colaptes chrysoides*) were seen in wing, and a specimen secured.

A hot Yuma Spermophile (*Spermophilus tereticaudus*) was seen on the top of a mesquite. I crept to the bottom of the tree and the thing was so paralyzed with terror that I easily caught it in my hand, and carried it safely to Verde, where it finally died and was preserved. It drank eagerly although inhabiting a region where water is seldom known. It ate corn and mesquite beans with avidity and was an agreeable pet.

The usual desert birds and animals were seen. Lizards were much more plentiful than when we passed over the ground before.

May 15th.

Marched 22 miles to Hall's Ranch on New River, A.J. When we started out from camp, I followed a wide arroyo with dry sandy bed, bordered with luxuriant shrubbery, in which were found Mockingbirds, Red-vented Thrashers, Black Crested Flycatchers, Black-capped Gnatcatchers, Yellow-headed Vets, Paleolated Warblers, Black-throated Sparrows, Cañon Towheas, Abert's Towheas, Park Buntings, Dwarf Cowbirds, Mourning Doves, White-winged Doves, and Gambel's Quail.

The last named is very abundant in this region. Hundreds of large flocks were seen. The Desert Hare and Northern Jackass Hare were abundant, and many were shot by the command.

The Yuma Spermophiles were exceedingly abundant; but I took no pains to shoot any. Harris's Chipmunk was seen in the border of the foothills & about Hall's ranch on New River. The Spermophiles were found to within a mile of Hall's ranch. Many Road-runners were seen, but no nests. I secured three specimens of young Malherbe's Flicker and saw several families. Palmer's Thrashers were plentiful. I skinned two males in worn plumage: also a Canyon Towhee, White-winged Dove, and a Black-capped Gnatcatcher taken near Hall's ranch with its newly-finished nest. The most abundant Cacti were the Sonora Cereus giganteus and the white Opuntia (Cylindropuntia) Bigelovii, in which latter I took a set of 3 eggs of Harporhynchus Palmeri). The Yuma Spermophiles were most plentiful in the wide belt of Grasewood between Desert Well and New River. Cactus Wrens, Shrikes, Western Lark Finches, Brewer's Sparrows, Ravens, Ash-throated and Say's Flycatchers, Black-chinned Hummingbirds, Texan Nighthawks, Texan Sapsuckers, Gila Woodpeckers, Sparrow Hawks, Red-tails, and White-winged Doves were seen at various places. The great abundance of the Mourning Dove was remarked. On the bank of New River were the beautiful Louisiana Tanagers, Vermilion Flycatchers, Rock Wrens, House Finches, Green-backed Goldfinches, Black Phoebes, White-winged Doves and Killdeer.

Turkey Buzzards were seen throughout the march. New River was the first stream seen since we crossed Salt River. It was much lower than before, full of little fishes. Mr. Lang gave me a Gila Monster that he killed on to-day's march. I presented it to Buzzard the Veterinary Surgeon.

May 16th

Marched 13 miles to Siviling's ranch on the Agua Fria, St. J. I left the trail and explored New River, after which I rode across country to the Agua Fria above the mouth of New River, its tributary. Black Peewees were abundant, and I found a nest containing four young. It was built in the clay bank beneath a ledge of limestone. I thought I saw a Bank Swallow, but later saw perhaps the same bird which proved to be Stelgidopteryx serripennis. Vermilion Flycatchers, Black-chinned, and Costa's Hummingbirds were abundant on the stream. Gambel's Quail's nest & eggs seen. Buteo abbreviatus. - At length I rode into a grove of good-sized cottonwoods on New River, and soon after entering it, heard the whistle of a Hawk, which ^{soon came} was hovering towards me in full cry. I fired from my horse, and brought it wounded to the ground, and after a chase captured and killed it. Walking up the bank of the stream, I scanned every tree closely in quest of its nest. I was not long in discovering a ^{gaily} nest ^{across the stream}, fixed in the fork of a large Cottonwood trunk, and the female parent standing upon it. She gave a loud whistle and came towards me. A load of time crippled her and she dropped badly wounded into the nearest cottonwood where I despatched her with an other charge of shot. The nest contained ^{my} ^{old birds had been feeding on frogs and lizards.} but one egg. They are described on pages 88, 39.

The stream was beautiful in this place, and I could not resist following and enjoying its handsome scenery, the more to be appreciated after our long ride across the scorched desert region of Arizona and New Mexico. Soon I was again rewarded by discovering a sitting White-winged Dove upon her eggs on a nest built upon the oblique trunk of a willow. I shot the sitting parent, which proved to be a male, and

secured the eggs which are described on page 38 of this Journal. In a narrow canon near the Agua Fria, I found the nest of the St. Lucie Cardinal (Cardinalis virginianus) built close to the roadside near Gillett (See descrip. on p. 38) and took the nest, 3 eggs and 2 parent.

The march, although short for the troops, was a hard and hot one for "Daisy" and me, as we followed no trail and made many detours. The soil too was either rough and rocky or light and ashy, while the ground ~~soil~~ was till, broken by deep ravines. Costa's Hummingbird was very abundant; but I could not find its nest.

Harris's Chipmunk was abundant. The Rocky Mountain Pine-tailed Spermophile (Spermophilus grammurus) replaced Spermophilus tenuicaudus. I found a dead Skunk (Meles meles), and saw a Coyote, and both species of Hares found in this locality, besides the Southern Pocket Gopher and Wood Rat. The only Mammal preserved was a ^(Dipodomys phyllotis) ^{specimen of the singular} ^(Dipodomys merriami) ^{the only one seen on the trip,} ^{although} ^{passes} ^{of the deciduous joints of Opuntia (Cylindropuntia Bigelowii)} ^{which was changed to the} account of this singular little beast [Mr. Lang, a person of close observation and accuracy of statement says that these Mammals are abundant in the mining district west of the Agua Fria, and that they dwell in caves and often select a prospector's shaft for a dwelling, never failing to surround it with a barrier of the Cactus joints of considerable height overhanging this animal easily leaps, but its enemies cannot follow. The height and extent of their leaps is remarkable.] My specimen was killed with a stick in the rocky bed of New River by my Hospital Steward.

Both Palmers and the Red-vented Thrashers were found in some numbers. Black-capped Gnatcatcher

were quite numerous. Yellow-headed Lits, Cactus, and Rock Wrens, Pileolated and Summer Warbler, Macgillivray's and Lucy's Wrens, Long-tailed Chats, Least Wrens, White-rumped Shrikes, Violet-green, and Rough-winged Swallows, Western Tanagers, House Finches, Green-backed Goldfinches, Western Gipping Sparrow, Brewers, Black-throated, and Song Sparrows, Canyon Towhees, Green-tailed GWhies, Abert's Towhees, Saint Lucas Cardinals, Dwarf Cowbirds, Hooded and Bullock's Orioles, Ravens, Western, and Cassin's King Birds, Ash-throated Flycatcher, Jays, and Black Peewees, Vermilion Flycatcher, Black-chinned and Costa's Hummingbirds, Texan Night Hawk and Sapsuckers, Gila Woodpeckers, Northern Flickers, Road-runners, Sparrow Hawks, Red-tail and Zone-tailed Hawks, Buzzey Buzzards, Mourning, and White-winged Doves, Gambel's Quails, Mockingbirds, Great Blue Herons, and Killdeers were the birds noted. I spent the balance of the afternoon and the evening in "flowing" eggs, and killing my ~~Diodonops~~ ^{Diodonops} ~~Hillifer~~ ^{Hillifer} and ~~merriami~~ ^{merriami} Mearns. some half dozen birds, most of them parents of set of eggs taken.

May 17th

Marched 12 miles to Bumble Bee, Arizona.

The canon of the Agua Fria extending southward behind Swellings Ranch is one of the prettiest places in all Arizona. I followed it down about two miles. The stream here is quite large, now flowing over an even bed of glittering sand for a mile, occasionally dividing to join lower down, enclosing in the loop a grove of tall cottonwoods ^{fringed} ~~fringed~~ with a growth of smaller willows and fringed with Arrowwood and vries. The banks are rocky covered with Sahuars, Echinocactus and Opuntias. Beautiful flowers grow beneath the cottonwoods, which here form the handsomest groves that I have yet seen in Arizona. In the early morning

I visited the sylvan dell, and was unable to tear myself away from its attractions until the morning was far spent, nor was the time idly spent. I found a new Thrush (Hylocichla ustulata) which was new to me and has only twice been detected within this territory and secured a specimen. A mile below Swellings the stream becomes a brawling cataract, rushing over a rocky ^{ford} canon and depositing birth on a sandbar almost unique in Arizona waters. Here in a branch of the stream purring over a bed of large pebbles, shaded by willows that meet overhead over my Tawny Thrushes hopping over the stones with the ease of Quiri, close beside the falls of the main stream.

A gorgeous Cardinal Grosbeak was seen near by, and its nest discovered after a long search and its partner shot to death and carried off along with her nest and three eggs. The male was too shy to be taken.

A female Bon-tailed Hawk (Buteo abbotti) was shot as she flew screaming at me, and the nest was soon found in a cottonwood near by. The parent flew away when I got close up to the tree and shouted, and flew away. Although seen soaring about for some time it did not return although I spent several hours in the vicinity did not return. I clung with vast exertion to the nest which contained two eggs, which together with the nest are described on pp. 38 to 41.

These eggs are not absolutely free from suspicion of being those of Urubitinga anthracina, as the parent seen to leave the nest was not shot; but it certainly was a black hawk having a white-banded tail. The eggs are much larger and differently marked and colored from that taken on New River yesterday. The bird shot was certainly the Buteo. Its stomach contained tree toads and a frog.

White-winged Doves were numerous in this place. They make a slapping and rushing noise in flight. The notes are "Cuck-oó, Cuck-oó" (four notes, or two 2-syllabic notes, given with force and mournful cadence.) Found of drinking beside streams. The curved wing-bars and white tip of tail are conspicuous in flight.

Costa's Hummingbirds (Calypte costae) were exceedingly abundant. In the creek bottoms where grow the desert willows, now in flower and preferred by them to any others, dozens might be seen at once, the males fighting furiously with each, sometimes ascending to such heights as to disappear from view. They also frequent the mesquites, now in flower upon the hillsides. I searched for their nest without success, although they were certainly breeding, as indicated by the battles of the males and the pugnacious conduct of the females, several of which buzzed angrily about my face, and one attacked a flying, ~~nearby~~, Killdeer, and drove the astonished Plover to the ground and silenced its vociferous cries, which seemed to have excited her in at the begin.

Chonoppla nitens. - Families of young are already upon wing with their parents beside the Agua Fria.

Astragalinus psaltria. - A Green-backed Goldfinch shot at Swilling, had a few black feathers in its neck.

Below the falls near Swilling the canon becomes narrower, and willows succeed the cottonwoods in the main, and these small birds were very abundant. Yellow-breasted Jays and Western Yellow-throats are characteristic species there. The latter were singing exquisitely, some mounting to the very summit of the willows.

Fishes, and Frogs were abundant in the Agua Fria. After leaving it, Palmer's Thrasher was heard all the way through Black Canyon, and birds within sight of Bumble Bee, as do the Cactus Wrens. Bigelow's White Cactus (Cylindropuntia bigelovii) grows

clear through Black Canyon. A nest of Carpodacus frontalis (House Finch) was built in one of them. It was made of a fine bright red flowering plant, and very handsome. Cactus Wrens were also found breeding nearly to the top of the canon. In Black Canyon the large Rock Marmots were quite numerous. In the stream were seen tracks of the Mountain Lion (Panthera concolor), and their plaintive startling cries were heard at night to our camp.

Near the top of the canon, in a Palo Verde or green-barked acacia, a White-winged Dove was sitting upon her nest close beside the stage-road, where I nearly succeeded in taking her off of the nest with my hand. The eggs and parent were taken. Gila Woodpeckers were found nearly to the top of the Canon. Gambel's Quail was seen leading brood of little bits of young ones up a nearly perpendicular precipice in the canon.

May 18th.

Marched 16 miles, to Antelope Station, A. T. Along the dry bed of the creek that flows through Black Canyon were a number of Palmer's Thrashers here seen for the last time. Red-vented Thrashers were also seen there. White-winged Doves were also last seen before we were out of sight of the Giant Cacti, when ascending the mountains; and a young Maleherber's Flicker was shot in the last soturas, that was bred in their vicinity. A couple of nests of the Mockbird were found, and one of the Giant Cactus Wren (Campylorhynchus brunneicapillus) before we left the valley; the latter containing five fresh eggs. No Gila Woodpeckers were seen before or after leaving the Black Canyon. Before we had scended far we reached the line of sage shrubbery & found some scattered cedars. Simultaneously we found the Woodhouse Jay and the nest of the first pair seen, containing four eggs, in an oak thicket.

A Coyote, some Mule Deer, Harris's Chipmunk, Rocky Mountain Fox Tailed Spermophile, Wood Rat, Desert Hare, Northern Jackass Hare, & Southern Pocket Gopher were the mammals noted.

We left the Sotomas (*Cereus giganteus*) behind when we began the ascent of the mountain; as noted before I shot a Malherbe's Flicker of the year in the last of them and found the nest of the *Cactus Wren* in the same locality. I traced Palmer's Thrasher so far and no farther; but *Campylorhynchus brunneicapillus* was found as far as the summit, before descending to Antelope. Malherbe's Flicker turned up again at Big Bug Creek, where there are no Sotomas or other arborescent cactuses. No Gila Woodpeckers were seen to-day, or subsequently.

A nest of *Zenaidura carolina* was taken upon a shelf of trap rock in a cliff - the first I ever saw in such a situation.



Embryo of Woodhouse's Jay.

May 19th

Marched 26 miles to Hance's Ranch, on the Cimarron. After riding a few miles we came to the green cottonwoods and other trees of Big Bug Creek, where I left Daisy and followed the stream about a mile. It is a beautiful mountain brook, bordered by cottonwoods, willows, Walnut, Ash and grape-vines, with a large species of ~~lemonberry~~^{lemonberry}, in which I killed a young Malherbe's Flicker, from a family of young of the year with their parents, ^{the female being also shot and wounded} the last seen on the trip! There were a number of Killers along the stream in a meadowy portion, and Rough-winged Swallows were building in the banks. I took eggs of the Least Vireo,

Mourning Dove and a set of 3 eggs of *Harporhynchus crissalis* which was built in an open situation suspended in a grape-vine. All of these eggs were broken later in the day together with other more valuable ones. A pair of Saint Lucas Cardinals were found beside the creek, and both were secured, and also their nest containing one egg, which, fortunately was not broken when the rest were destroyed. Lewis's Woodpeckers were disporting in the cottonwoods and Lucy's Warblers were singing their lively song. The Line-tailed Squirrel (*Spermophilus grammurus*) was abundant. One ran up the bank towards me and stopped when it saw me, paralyzed with fear. My Horse had run off and left me when I reached the road, and I had some trouble in finding her.

The nest of a Chaparral Cock (*Gesococcyx californianus*) was found in an isolated scrub oak thicket on a sloping hillside. It contained 5 fresh eggs, some of which were afterward broken when my horse ran away.

Lewis's Woodpeckers were again found among the cottonwoods of the Agua Fria, on the bank of which I shot a Road-runner and had an exciting chase before I caught it. Taking a wrong fork of the road, I again came to the Agua Fria, and met some pleasant people at a ranch, where I rested and talked for half an hour, and then pursued my way. An other nest of *Harporhynchus crissalis* was taken in a scrub oak; but like the first set they were all afterwards broken when my mare ran away.

I "took across" a wide grassy slope to the Ash Creek at a narrow cañon, which I had to follow for some distance before I could get my horse down into the bed of the stream. ~~After~~ The only thing of interest found in this open place was a "nest" or at least two eggs in a hollow scooped out on the bare ground.

of the Mourning Dove (*Zenaidura carolinensis*) from the parent fluttered when my horse was exactly over it giving both "Daisy" and myself a start.

The banks of Ash Creek were at first a tangle of scrub oak and rocky bluffs, in which were plenty of "Rock Squirrels" (*Spermophilus grammurus*) and Gila Chipmunks (*Tamias sonoriensis dorsalis*). Then a fine grove of cottonwoods was reached, and in one enormous tree was the huge nest of the Western Red-tail (*Buteo borealis calurus*). I had a hand chub pistol, but reached the nest and secured the two fresh eggs, which were larger and more handsomely blotched than any others that I have seen; but they were crushed before I wrote any description and took any measurements. Another nest was soon found in another large cottonwood. The parent sat upon it. I shot her after dismounting and when I did so stampeded a drove of horses behind some willows close-by, and my "Daisy" went with them. It was very hot, and I was fatigued from much walking, but was obliged to keep in sight of my brunt mare, who kicked up her heels like a kitten, after her 900-mile trip and outran all of the wild horses. After two or three hours of hard walking and much running I at last corralled them in a narrow canon, ran my mare up to the end and then captured her, and found only a half dozen of the eggs which I had taken whole and several valuable birds ruined by the broken eggs in the pockets of my saddle, in which I had carried eggs safely through the entire trip.

The nest was again visited and a couple of half-grown young Red-tails taken, one of which I skinned and preserved. I did not reach camp until dark, much disgusted with "Daisy's" performance that delayed me so long and smashed my best eggs.

The Mammals seen not already mentioned were the Mule Deer, Common Skunk (*Mephitis astor mearnsi*), Black-footed Raccoon (tracks of), both Hares (*Lepus sylvaticus arizonae et callotis texianus*), Long-eared Bat, Harris' Pipemill, Wood Rat ~~and~~, Southern Pocket Gopher, and Coyote.

May 20th

Marched 11 miles to Fort Verde, Arizona. I awoke early, breakfasted hastily, and then galloped "Daisy" to the head of Copper Harbor, near which place I saw the only Black-chinned Sparrow (*Spizella atrogularis*) seen on the trip. Black-headed Grosbeaks were abundant, as they were in the scrub oak districts of yesterday's march from Antelope. Lead-colored Tits, Coates' Hummingbirds and Spurred Towhees were seen the two last days; and it is to be remarked that the last was only seen on the two first and last days of this trip. The Lead-colored Tits were only found on the first day and last two days of the trip. ^{and numerous} Big Bill Creek; for I saw a very noisy family of young ones being led by their parent yesterday.

I did not load my cartridges for to-day's shooting as I was anxious to get in to the Post as soon as possible and see my family after two months absence so I only stopped long enough in the canon to pluck a big bouquet of wild flowers for Mrs. Meams - Indian paint, Yellow columbines, pale purple locusts and large peas - and galloped into the Post before nine o'clock on my white mare "Daisy" who carried our 9 1/2 miles to Dewing and back with never a limp or sore back; but we were both glad to get in. The Post ambulance had been sent out for Mrs. Ayres whom I found at our house on my arrival, and Captain Baldwin soon joined us, with Lieut. Smith [skilled at battle of Santiago, Cuba, 1898.]

My collections were found to be in excellent condition. Not even an egg was broken on the entire trip, and nothing was missing.

The collections consisted of

- | | | |
|-----|-------------|-----------------|
| 29 | Mammals, | 1 Box Tortoise |
| 236 | Birds | 2 Gila Monsters |
| 186 | Birds' Eggs | Horned Toads |
| 9 | Nests | 1 Lizard. |
| 2 | Serpents | |

All of the above were dry preparations, there being no alcohol, nor means of transportation for alcohols.

A report upon the Mammals and Birds was sent to the Surgeon General, U. S. Army, through the Medical Director of the Department of Arizona, and deposited in the library of the Army Medical Museum.

All official communications to this Office should be addressed "To the Surgeon General, U. S. Army, Washington, D. C."

WAR DEPARTMENT.

SURGEON GENERAL'S OFFICE,
RECORD AND PENSION DIVISION.

Washington, D. C., July 16th, 1885.

Assistant Surgeon E. A. Mearns.

United States Army.

Fort Verde, N. T.

Sir:

The Surgeon General directs me to inform you of the receipt of your preliminary report upon a part of the vertebrate animals observed by you while in the field from March to May 1885. This report has been referred to the Curator of the Army Medical Museum from whom you will receive further acknowledgement and advice.

Very Respectfully,

Your Obedient Servt.
Suzannia L. Dope

Assistant Surgeon U. S. Army.

Army Medical Museum & Library, S. G. Office,

509 to 515 TENTH STREET, N. W.,

Washington D. C., July 17th, 1885

Dr. Edgar A. Mearns
Assistant Surgeon U. S. Army.

Dear Sir:

Your communication of June 29, 1885, transmitting to the Surgeon General a preliminary report on the zoology of parts of Arizona and New Mexico, has been forwarded to this Division. I have examined it with interest and pleasure, and have no doubt the complete report will be a valuable addition to our information with regard to the natural history of these localities.

I note that you state that the collections are intended to be presented to the American Museum of Natural History. In view of the fact that we are endeavoring to make in this Museum a complete collection of specimens in comparative Anatomy to

over

illustrate the development and morphology of man, and of the fact that all specimens of comparative anatomy and zoology are of value to this Museum, either to be placed in it directly or to be used as a means of exchange to obtain specimens bearing more directly on its special purposes, it is hoped that medical officers of the army in making collections will give this Museum the first choice of specimens which they may collect.

We desire to obtain a series of preparations which shall illustrate, not merely the skeleton, but also the development and evolution of various organs, and soft parts of the animal body, and, for this purpose, specimens preserved in alcohol are essential. As an indication of what is wanted, I enclose herewith a memorandum of some things which are specially desired, and which I hope you may, in part, at least, find it possible to obtain for us.

Hoping to hear from you on this subject,

I remain,

Yours very sincerely
John S. Billings

Surgeon of Army
Curator Army Medical Museum.

<u><i>Felis concolor</i></u>	Head, in spirit, or any of the viscera. Skeleton of young individual.
<u><i>Taxidea americana</i></u>	Adult skeleton; also skeleton of young preserved in spirit - Viscera.
<u><i>Dastor fiber</i></u>	Skeletons of young and adult; also viscera, brain, etc.
<u><i>Antilocapra americana</i></u>	Skeleton of young in spirit. Head containing brain, in spirit.
<u><i>Polyborus</i></u>	Entire in spirit.
<u><i>Oreotrochilus</i></u>	Entire.
<u><i>Circus hudsonicus</i></u>	Entire
<u><i>Glaucidium</i></u>	Entire
<u><i>Buteo borealis</i></u>	Entire.
<u><i>Aquila</i></u>	or any other Raptorial species, Entire.

Those preserved in alcohol should be carefully packed, to prevent breakage. The alcohol should not be of less than 70% strength.

Notes on a Trip from Fort Verde, Arizona,
to Flagstaff, Arizona, ^{and back}, made between June
18th and 22nd, 1886.

This trip was made for the purpose of meeting my Mother, who was coming from the East, and conveying her to Fort Verde.

The Chief Quartermaster sent me an ambulance and excellent four-mule team from Whipple Barracks, and, as the team reached Verde early on the morning of June 18th, I concluded to move out as far as Beaver Head station, now deserted but formerly a station on the Star Route stage line from Prescott, Arizona to Santa Fe, New Mexico, that evening.

Mr. Danill Robinson politely volunteered to accompany me on the trip for the pleasure of the drive. We found plenty of water in Beaver Head Creek a little way below the point at which the road crosses it, but the stream had sank above. We encamped at dark beside the well at the old station, and, after baking some bread in the Dutch oven and cooking a meal, retired. Mockingbirds, Chats, Great Horned Owls were heard in the evening; also one or two Poor-Wills.

At daylight, a couple of Skunks (Leoncpatus macrourus) were seen running about our camp taking an inventory of our effects. I ran barefooted after them with my shotgun, from which my thoughtful companion had with commendable prudence removed both the cartridges, and was, therefore, unable to shoot the Skunks although I snapped both barrels.

We broke camp at sunrise, after breakfasting on a young Jack Rabbit which I shot through the head with my Govt rifle. These Rabbits are

excellent eating notwithstanding the general opinion that they are filled with animal parasites and almost unfit for food.

We ascended a steep hill about a mile in length, and then began a gradual ascent through a fine growth of red cedars, which were studded with clumps of the parasitic Mistletoe and interspersed with mescal or Agave, now in bloom and some bear-grass and Spanish bayonet. Hares of two species (L. L. texianus et sylvaticus arizonae) were exceedingly abundant. After riding about six miles, we walked a short distance to the edge of a deep canon, which our road headed at Rattlesnake Tanks. The view of this canon is fine; and our position commanded that of the entrance to the Red Rock Country in the direction of Oak Creek.

Gambel's Quails were abundant, and hundreds of young ones were seen with their parents. Often about 25 young quails would be found accompanied by several females, and the cock birds also frequently accompanied them. This strengthens the view that I have always entertained, viz.: that it is quite common for several Gambel Quails to nestle together, as the number of eggs (occasionally nearly thirty) and different color phases exhibited in the same clutch illustrates.

The only birds of special interest were numbers of White-throated Swifts, which were evidently breeding in the ~~adjacent~~ cliffs of the adjacent canon, and one fine Zone-tailed Hawk, which flew within a few feet of me when standing at the edge of the canon.

From Rattlesnake Tanks, where the Filagrial road divides from the old Star Route, we ascended rapidly over a rolling country, covered with grass, with patches of scrub oak and mescal. The

The red cedars are left behind and are sparingly replaced by the rough-barked juniper. In the canons below Rattlesnake Tanks a couple of pines were first noted, and some piñon-pines were also seen. Mescal was found nearly up to the pine timber-line on the mountain, which begins about six miles above Rattlesnake Tanks. Mockingbirds and White-throated Swifts were left behind at Pine Tanks, now dry, where the pine forest begins. At first the pines are rather small, and increased in size as we gradually ascended the mountain to Flagstaff. The rough-barked juniper penetrates the pine belt a few miles. Deciduous oaks begin with the pine timber, but are not very abundant anywhere nor of as large size as they are in the part of the Mogollon Mts. between Forts. Verde and Apache.

The "Carpintero" Woodpecker of the Mexicans and Steller's Long-crested Jays appeared with the first pines.

After riding five miles from Pine Tanks, we came upon an open meadow, a couple of miles in extent, through which a small stream winds. These open spaces, richly carpeted with grass, are known as "parks". This one is owned by Mr. John Woods. A fine herd of cattle and horses was grazing upon it. The stream flows through a deep ravine from this meadow; and I wanted to explore its woody depths, where birds would doubtless have been abundant.

We next found water and a cabin at a place like that just described. This was Munds's ranch, where we camped for the night beneath some enormous pines. I took a walk of about four miles in search of Antelope, which Mr. Munds had told me frequently came to the edge of the park. I passed close to an Antelope that was lying down,

and had the mortification of having a Dr. Carrier, who lives at the ranch, shoot it close behind me. The Doctor had hunted all day, and seen a number of Deer and Antelope during the day. The Deer stay on the ridges; but the Antelope come down to the grassy mesas and parks, or live in the open pine woods. The Antelope in Arizona habitually inhabit the high wooded mountains, where they are not found elsewhere than here in the South.

In a ravine near Munds's place, a quantity of rose-purple locust shrubs were in full flower, and fragrant. I shot an Abert's Pine Squirrel there with my rifle. I could have obtained some rare birds had I carried the shotgun instead of rifle. Robins, Long-crested Jays, Western Tanagers, Park Finches, Mountain Chickadees and Californian Woodpeckers were abundant and doubtless breeding there. Two Crows were seen, which were afterwards found in the same dry pine-tree when we returned two days later. One or two small Chipmunks were seen which I could not identify, but were either Spermophilus asiaticus dorsalis or S. a. quadrivittatus (= Eutamias cinereocollis Allen).

I returned to camp fatigued; but, after resting a while, explored the canon and stream coming through the park from a canon above it having its source high up in the hills. Both here and at Woods's, we found numbers of Brewer's Blackbirds having young upon the wing. Some were barely able to fly, and had down tufts still adhering to the tips of the feathers. The young in the first plumage are colored like their mothers. I examined a dead one which I found, and intended to shoot a specimen in the first plumage for preservation but neglected to do so. I think they usually build their nests in pine-trees. The only nest I saw, was

placed in a aspen-tree six feet above the ground. It is composed of fine twigs, stems of plants and lining of rootlets). It contained four (4) eggs which contained small embryos. The suite of eggs was preserved; but the nest was accidentally left behind at Flagstaff.

The parks and vicinage of streams have large beds of irises or Fleur-de-luce. In the little canon through which the stream flows were found the only spruce trees seen on the trip. They were festooned with hanging usnea moss. The wild rose, iris, honeysuckle and white clover were growing plentifully.

I shot a Long-crested Jay in a pine-tree. Its plumage was very much worn and soiled with gum, its throat being nearly bare. Many birds were seen in the pine-tops and a beautiful Red-faced Warbler was flushed from its nest upon the side of the bank, close to the trunk of a large spruce. It alighted in the lowest branches of a small spruce, uttering a sharp, hard chip. The bird was so fearless and the place I was in so hard to get out of that I feared I could not secure the specimen without mutilating it. I fired a charge of 10³, my finest shot, aiming six inches to one side of the bird and did not hit it at all. Then it flew a little farther off and the same experiment was repeated with no better result. Then it flew to the lower limbs of a distant spruce and hopped nimble about uttering its single note until shot. Its red face, black cap, gray back and white rump, suggested to my mind a miniature of the European Bullfinch (Pyrorrhula europaea). After securing the old bird, which was a new species to my field experience, I began to search for its nest upon the ground. An old nest was discovered, after close search, and I was about to conclude that it

belonged to my bird and was not yet completed, when I saw a little opening among the ^{stones} rocks and pine needles, and, on parting some blooming honeysuckles and moss, I discovered the nest, as artfully concealed as it was deftly constructed and prettily located. In it were four (4) eggs which contained small embryos which were easily removed. The shells were thick and hard.

A small, chequered serpent was seen beside the stream, in a bush, that was new to me, but escaped before I could capture it. Here I first saw a tall plant resembling Veratrum viride, six feet high, which was afterwards seen occasionally between there and Flagstaff. After gathering a few new plants and pressing them, I returned to camp with a new bird and two new nests and eggs. In the twilight I shot a small Bat of a dark auburn color that was also new to me; but it was so badly mutilated that I was unable to preserve the specimen.

June 20th. — The drive to Flagstaff through the open parks and pine timber was delightful. We arose from a refreshing sleep well covered with blankets notwithstanding the intensely hot weather down below us in the Verde Valley, where the maximum temperature of the five days spent on this trip averaged 105° F. in the shade. Starting early we reached Flagstaff between ten and eleven o'clock in the morning. Songs of unfamiliar birds were heard as we rode along. Among the more conspicuous vocalists was the Plumbaceous Vireo, of which species I obtained my first specimen. The gorgeous Violet-green Swallow ^(Tachycineta lepidota means) was continually sailing about us; and one Purple Martin flew overhead about the top of a large pine. I first heard the song of the Sleepytime Manager and in fact many other mountain birds, most of

which I was unable to identify while bowling swiftly along in our ambulance, only stopping occasionally to have a shot at some squirrel or bird.

I shot three female Say's Chipmunks (*Tamias lateralis*). None were seen until we were within a dozen miles of Flagstaff, where a number were seen sitting upon ~~logs~~ rocks or logs that had been felled for the saw-mill. They utter a high-pitched whistle which is ventriloquial and seems to come from the nearest tree-top when in reality the animal is at quite a distance and upon the ground. They are larger and less shy than Harris's Chipmunk. A fine Rocky Mountain Pine-tailed Spermophile was shot on a log near the road. It was suckling young as were all three Say's Chipmunks, which contained a quantity of milk in the mammae, which bore evidence of suckling.

Near the Hydraulic Works, in an open shed near the pump, I shot a little Weasel whose audacious temerity was nothing short of marvellous. It came right up close to me. I had much difficulty in getting far enough away from it to shoot it without mutilation, which I succeeded finally in doing. This was *Putorius arizonensis* Mearns.

No Hares of any species were seen anywhere in the pine timber on the trip.

Soon after leaving Mund's a place, we saw the first Hepatic Tanagers (*Piranga hepatica*). Two pairs were courting and fighting. They chased one another about through the trees and once or twice settled upon the ground. This species appears to be partial to the oak timber in the pine woods.

The pines are of large size and harbored numbers of Pileated and Slender-billed Nuthatches, Louisiana Tanagers, Desert House Wrens, Juncos, Lark Finches, Mexican Bluebirds, Robins, Violet-green

Swallows, California Woodpeckers, Sparrow Hawks, Plumbous Vireos, Pine Finches, Long-crested Jays, Audubon's Warblers, etc., etc.

We pitched an A tent for Mother in a grove of magnificent pines, where Plumbous Vireos, Louisiana Tanagers, Robins, Arizona Chipping Sparrows, Arkansas Kingbirds (~~and~~ probably Cassin's ~~and~~), Pine Finches, Audubon's Warblers, Jays, Woodpeckers, Nuthatches and many other birds were singing or uttering their usual notes. I heard what I think was a Brown Creeper but did not see it.

I spent most of the afternoon in calling about town and skinning squirrels. Purple Martins were numerous at Flagstaff. One was seen 15 miles south of Flagstaff, in the pine woods; but I shot none. I regretted having so short a time to spend at Flagstaff, as I would undoubtedly have found numbers of nests and eggs, besides birds and mammals new to me. Bats large and small were abundant in the evening.

Mother arrived on the train at ten o'clock, June (3) hours behind time, and went at once to the tent to retire and slept soundly.

June 21st:- We were delayed at Flagstaff to have some work done on our ambulance. I went shooting for an hour. A pair of Robins had built a nest in a small pine, 20 feet high, and were waging war against an Albert's Pine Squirrel which I shot in a very large pine-tree. I first saw the Squirrel upon the ground. My attention was attracted by the cries of the Robins. The cry of this Squirrel is a squall. Chipmunks were seen in a rocky cañon. They looked like var. dorsalis. I wounded two, both of which escaped into rocks. Doves were fairly common. Juncos, Jays, Bluebirds, La. Tanagers, Lark Finches, Mountain Chickadees, Brewer's Blackbirds, Robins, Cal. Woodpeckers, Nuthatches, Audubon's Warblers, ^{purple} Western King-

(*Tachycineta lepida* Mearns)

Birds and Violet-green Swallows were the most abundant birds. A bird resembling *Setophaga ruticilla* was seen in the pine-tops, but was not identified positively. One Hepatic Tanager was shot. We left Flagstaff at eleven o'clock, a.m., and rode to Munds's ranch where we stopped for lunch. Before reaching that place an Antelope was seen near the road but trotted over a ridge before I could get at my rifle. I started to stalk him on foot, but could not get within 400 yards although he circled and zig-zagged around me for half an hour; so I did not fire at it at all.

Violet-green Swallows were very abundant. Although a few breed in the Verde Valley, their true home is undoubtedly in the pine forests of higher altitudes.

At Woods's ranch, we stopped an hour and watched the rodeo at the corral. Killdeers were found along the stream in the park, and were the only Water Birds seen on the trip. A small serpent was captured there.

We camped for the night at Pine Tanks, which were dry; but we had water for cooking and drinking in the canteens. The mules were watered at Woods's. We got to our camp at Pine Tanks at sunset.

June 22nd. — A pair of Hepatic Tanagers was shot at camp before we were ready to leave. Pine Tanks is on the edge of pine timber, and we were soon descending towards Rattlesnake Tanks. Rabbits, Mockingbirds and White-throated Swifts were soon again seen, and after a time the rough-barked junipers gave place to red cedars with now and then oak shrubs and bear-grass with various other shrubs and occasional clumps of *Cactus* (*Platocactus* *Mammillaria*) and aloe.

At Rattlesnake Tanks, the curious batrachian

having external gills like the *Nemobranchus* was found. They were only about three or four inches long, and were the same that I found in tanks on the Mogollon Mts. on the Apache road.

Upon the rocks beside the tanks were some superb conical bunches of *Mammillaria* cactuses. Passing down through the cedars we found Hares in great abundance and *Spermophilus*, *Lila* Chipmunks. Green Lizards (*Crotaphytus collaris* \$) were abundant, basking upon malapai rocks in the sunshine. I also shot two which were preserved in alcohol. Turkey Buzzards were numerous along the cliffs, as were Western Red-tail Hawks. Phainopeplas were not seen until we reached Beaver Head. The usual valley birds were seen thence in to the Post, where we arrived at two o'clock P.M. We found a wooden box, filled with the rose-purple Locust flowers and others at Pine Tanks, quite fresh when opened at home nine hours later.

List of Mammals seen. —

Canis latrans. — Heard at all camps.

1. *Urocyon cinereo-argentatus*. — Tracks in the canon near Munds's ranch.

2. *Sciurus aberti*. — Found throughout the pine forests.

I shot specimens at Munds's and at Flagstaff.

3. *Spermophilus grammurus grammurus*. — One was shot as high up the mountain as Flagstaff.

4. *Spermophilus lateralis*. — Say's Chipmunk was only found in the vicinity of Flagstaff, where it was very abundant. Seen by us for the first time. We captured four specimens, all females.

5. *Spermophilus asiaticus dorsalis*. — Several were seen between Beaver Head and Rattlesnake Tanks.

Some Chipmunks seen about Flagstaff appear to belong to this race, but were not positively identified. [The latter may be *Eutamias cinereicollis* *quadrivittatus*.]

- Eutamias amoenecollis* Allen
6. *Tamias cuniculus quadrivittatus*. - One that we saw running up a tall pine nearly to the top looked to me like this subspecies.
 7. *Lepus sylvaticus arizonae*. - Abundant throughout the belt of cedar timber, gradually disappearing thence through the sparser rough-barked junipers. We saw no Hares in pine timber; but there are probably a few in rocky ridges if not in the open pine forests.
 8. *Lepus texianus*. - Habitat the same as above.
 9. *Antilocapra americana*. - Only two, one male and one female, seen near Munn's ranch; said to be common.
 10. *Cariacus macrotis montanus*. - Common on ridges and high ground. Scarcer in the open woodland.
 11. *Mus musculus*. - A House Mouse was found in Mr. Brannan's hay scales, when he was showing them to us, at Flagstaff.
 12. *Putorius arizonensis* Mearns. - The Little Weasel shot at the stem pump near Flagstaff is the only Weasel I ever saw or heard of in Arizona aside from published records. It was a female suckling young. The anal gland contained a very permeating foetid liquid, which I was unable to get rid of for several days. The specimen was in excellent f. r.
 13. *Homonomys talpoides umbrinus*. - Its mounds were not noticed after we reached the pine woods.
 14. *Long-eared Bat*. - Common.
 15. *Little Brown Bat*. - Common.
 16. *Auburn-haired Bat*. - One was shot at Munn's. It was badly mutilated and not preserved as I expected to be able to obtain a perfect specimen, but neglected to do so when returning.
 17. *Conepatus mapirito*. - Two on Beaver Head June 19.

Note. - Mr. "Bill" Munds is an old settler and owns a handsome herd of stock and a fine range. He told me that when he first came into Arizona, many years ago, he found the Indians making a "drive" for Elk (*Cervus canadensis*) in the San Francisco Mts. There were plenty of Elk tracks and more Indians. He did not see any of either but there was abundant evidence that the drive was successful.

Dr. Brannan, of Flagstaff and his brother each have a specimen of the Mountain Sheep. Obtained near Flagstaff. Mr. P. J. Brannan sent his mounted specimen to the Centennial exhibition at New Orleans, and had not received it back when I was there. The Dr. sent his specimen East to his mother. I have never yet seen an Arizona skin.

Birds : - The only birds of interest seen below the pine belt were a Gosh-tailed Hawk (*Buteo abbreviatus*) and many White-throated Swifts (*Nicropus melanoleucus*) seen in the Cañon below Rattlesnake Tanks, and the latter there nearly to the pine timber at Pine Tanks.

The following is a complete list of all the birds seen and identified in the pine timber between Pine Tanks and Flagstaff:

1. *Egialitis vocifera*. - A few on a small stream flowing through a park at Woods's, at an elevation of nearly 7,000 feet.
2. *Zenaidura macroura*. - Sparsely scattered through the pine timber; most abundant at Flagstaff.
3. *Falco sparverius*. - Common in the pine woods, where there is an abundance of fine nesting sites.
4. *Colaptes cafer*. - Several were seen at Flagstaff, and a few were scattered along the road all through the pine woods.

5. Chordeiles virginianus henryi. - This Nighthawk was abundant at Flagstaff, where I recognized it instantly by its harsh note, which is quite unlike that of C. acutipennis texensis the only species I had found hitherto in Arizona. They might easily have been shot, but I had no opportunity.
6. Trochilus alexandri. - No other species was recognized; but I may have seen several others, as Hummers were frequently seen darting about in the pine forests.
7. Tyrannus vociferans ^{doubtless aff. vireo}. - Common everywhere in the pine woods; the only one shot was this species, but I think some of those seen were T. vociferans.
8. Sayornis saya. - Occasional; a few about Flagstaff.
9. Contopus richardsonii. - Common.
10. Cyanocitta stelleri macrolopha. - Common throughout the pine timbered country. One nest found at Flagstaff was just finished, probably for a second brood. It resembled a Blue Jay's (C. cristata) and was placed in the topmost fork of a pine 25 to 30 feet high.
11. Corvus corivorus sinuatus. - Scarce.
12. Corvus americanus. - A few were seen. It probably breeds in pine-trees. A pair seen at Munns' were in the same tree when we returned two days later, and perhaps had a nest near.
13. Scelophaeus cyanocephalus. - Found, especially about cattle, throughout the pine timber. The young were on wing, although I found one nest in an aspen-tree, from which I took four nearly fresh eggs.
14. Spinus pinus. - Common near Flagstaff.
15. Chondestes grammacus strigatus. - Common all through the pine woods. Singing sweetly.
16. Spizella socialis arizonae. - Very common at Flagstaff.

17. Junco caniceps dorsalis. - Common. None were shot, but I think they were subspecies dorsalis as those found in the neighborhood of Baker's Butte a short time after were J. dorsalis. There may have been other species or races of Junco present.
18. Piranga ludoviciana. - Abundant, sweetly singing.
19. Piranga hepatica. - Not rare in the pine woods. Seems partial to the deciduous oaks found in the pine woods. The male sings a loud, remarkably sweet song, which I heard best at ~~our~~ sunrise in our last camp at Pine Tanks, where I secured a pair.
20. Progne subis. - One seen near Munns' ranch. Common at Flagstaff.
21. Tachycineta thalassina. - The most characteristic species in the pines. This is Tachycineta lepida Mearns.
22. Vireo solitarius plumbeus. - Common; a sweet singer; breeds in tall pines.
23. Dendroica auduboni. - Common in the pine timber where they breed.
24. Setophaga (?) sp. - This bird was seen at Flagstaff in pines, but could not be identified.
25. Cardinalis rubrifrons. - The female whose nest I took at Munns' was the only one seen to be identified; but I probably saw others skipping in the pines at too great a height to be recognized.
26. Salpinctes obsoletus. - A few at Flagstaff.
27. Frogglodytes aédon allenii. - Rose some miles before reaching Flagstaff the finest pines near the road have been felled and left upon the ground in preparation for the saw-mill. Among the branches of these prostrate giants of the forest, the little House Wrens ~~were~~ Frogglodytes were skipping merrily about. They were abundant. A specimen was secured on our return trip.
28. Sitta carolinensis aculeata. - Rather scarce.

29. Sitta pygmaea. — Rather abundant.
30. Parus gambeli. — Apparently rather scarce. A few were seen at Flagstaff along the road.
31. Poleoptila caerulea. — Rather uncommon.
32. Merula migratoria propinqua. — Rather common in the plains, especially at Flagstaff, where they sang loud and sweet.
33. Diclidurina mexicana. — Abundant everywhere through the pine woods.

List of Specimens Collected:

Mammals:-

- No. 420. Sciurus aberti. ♀ ad.
- " 421 Sciurus aberti. ♂ juv.
- " 422 Sciurus aberti. ♀ ad.
- " 423 Spermophilus grammurus. ♀ ad.
- " 424 Tamias lateralis. ♀ ad.
- " 425 Tamias lateralis. ♀ ad.
- " 426 Tamias lateralis. ♀ ad.
- " 427 Tamias lateralis. ♀ ad.
- " 428 Peromyscus meadowi. ♀ ad. = P. amoenus Mearns.

Birds:-

- No. 4903. Leiocephalus rubrifrons. ♀ ad. with nest and 4 eggs.
- " 4904. Tachycineta thalassina. — Lepida Mearns.
- " 4905. Vidua solitaria. plumbeus. ♂ ad.
- " 4906. Piranga ludoviciana. ♂ ad.
- " 4907. Cyanocitta stelleri macrolopha. ♂ ad.
- " 4908. Piranga hepatica. ♀ ad.
- " 4909. Zuglodytes aetion aleni. ♂ ad.
- " 4910. Piranga hepatica. ♂ ad.
- " 4911. Piranga hepatica. ♀ ad.

Reptiles:-

1. One Serpent (at Woods) preserved in alcohol.
2. Crotaphytus collaris. - Collared Lizards preserved in alcohol.
- Plants. - About 20 species were preserved.
- Eggs set of 4 of Sceloporus cyanostictus.

88, 88, 89, 98, 103, 111, 114, 118, 127, 139, 134, 137, 140, 141, 149, 150,

164.

98, 100, 103, 118, 126, 127

- Lepus callotis* 16, 65, 66, 67, 68, 71, 75, 111, 114, 118,
Lepus texianus 16, 46, 48, 50, 52, 54, 60, 65, 66, 67, 68, 75, 77, 81, 84, 88, 88, 89, 98, 103, 111, 114, 118, 127, 129, 134, 137, 140, 141, 149, 150,
Erethizon dorsatus epixanthus
Castor fiber canadensis 122, 139 (letter),
Dipodomys phillipsi ordi 16, 122 (pile up cactus joints), 129,
Thomomys talpoides umbrinus 77, 88, 88, 129, 134, 137, 150,
Sciurus hudsonius fremonti
Sciurus aberti 143, 147, 149, 154.
Sciurus arizonensis 150
Tamias asiaticus quadrivattatus 143, 147, 150,
Tamias dorsalis 48, 50, 50, 77, 136, 143, 149, 149,
Tamias harrisi 16, 48, 49, 52, 53, 54, 118, 127, 129, 134, 137,
Tamias lateralis 146, 149, 154.
Spermophilus grammurus 48, 50, 129, 133, 134, 135, 136, 146, 149, 149, 154.
Spermophilus tereticaudus 16, 52, 54, 62, 73, 75, 77, 87, 88, 92, 93, 94, 95, 98, 100, 103, 118, 126, 127.
Cynomys columbianus 16, 58, 60, 79, 80, 81, 93, 99, 100,
Mus decumanus
Mus musculus 150,
Dicotyles torquatus
Cervus canadensis 151,
Cariacus leucurus crooki et mexicanus
Cariacus macrotis montanus 48, 54, 77, 88, 89, 100, 134, 137, 150,
Antilocapra americana 48, 88, 89, 100, 112, 139 (letter), 142, 143, 148, 150,
Ovis montana 63, 151,
Canis familiaris (Indian Dog)
Long-eared Bat 137, 150,
Large Brown Bat
Little Brown Bat 150,
Red Bat, and all other spp. 50, 54, 77, 103, 145, 147, 150,

Mammals 1, 138.

Sorex

Moles (all spp.)

Felis concolor 16, 133, 139 (letter),

Lynx rufus maculatus

Lynx canadensis (or other species than the above)

Bassaris astuta

Canis lupus occidentalis

Canis latrans 48, 50, 54, 88, 118, 129, 134, 137, 149,

Vulpes velox 16, 69, 110, 118,

Urocyon cinereo-argentatus 149,

Gulo luscus

Putorius brasiliensis frenatus 146, 150, 154

Mephitis mephitica 129, 137,

Mephitis interrupta

Conepatus mapurito 140,

Taxidea americana berlandieri 77, 88, 89, 139 (letter),

Lutra canadensis

Procyon hernandezii 22, 137,

Ursus horibilis

Ursus americanus

Neotoma mexicana 77, 88, 89, 122, 129, 134, 137,

Hesperomys leucopis sonoriensis

Hesperomys leucopis cremicus

Hesperomys leucogaster torridus

Arvicola (riparia?)

Sigmodon hispidus arizonae

Fiber zibethicus

Lepus sylvaticus nuttalli

Lepus sylvaticus arizonae 16, 23, 46, 48, 50, 54, 60, 88, 94, 96, 100, 118, 122, 127, 129, 134, 137, 141, 149, 150,

